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MAGAZINE

JULY 1952
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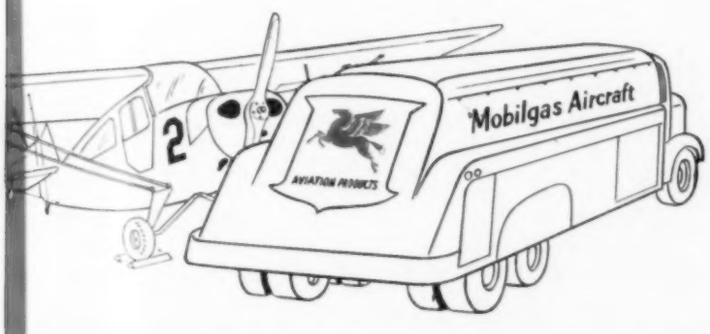
SAN ANGELO FLIGHT SERVICE

Gives Young Men a Flying Start

San Angelo Flight Service, in addition to its job of daily servicing visiting aircraft at San Angelo's Mathis Field, has another job ... as a contractor to Uncle Sam's Air Force in preparing young cadets for future flight training. This program, known as "The Light Plane Project", was developed by the Human Resources Research Center at Goodfellow Air Force Base, San Angelo, Texas. It's objective ... the early determination of a cadet's ability to make a full-fledged Air Force pilot. With about 25 hours flying time in light aircraft, the Air Force hopes to find out, among other things, if light plane training will uncover deficiencies which cannot now be determined by present selection methods. If successful, the program will save thousands of dollars and invaluable weeks of time in the Air Force's stepped-up training program.



San Angelo Flight Service offers Friendly Mobilgas Aircraft and Mobiloil Aero Service to visiting flyers at Mathis Field, San Angelo's Municipal airport.

Mobilgas AIRCRAFT

FORWARD WITH Aviation

Mobiloil AERO

MAGNOLIA PETROLEUM COMPANY

Continuous Progress for 35 Years—

A milestone in aviation history was passed on June 1, 1952. That date marked the 35th anniversary of the founding of Chance Vought Aircraft by the late Chance Milton Vought, one of aviation's most brilliant engineers.

The record of Chance Vought's "firsts" is both long and impressive. The Navy's first aircraft carrier, the U. S. S. Langley, was equipped exclusively with Vought VE-9s. The Vought UO-1 was the first to prove the practicability of catapulting planes from battleships and cruisers; a Vought plane was the first folding-wing monoplane; and the F4U before World War II, was the first 400-mile-an-hour fighter in the country. The history of Naval aviation is filled with countless examples of Vought pioneering . . . pioneering which has been important in helping to make the Navy's Air Arm the world's best.

Today, Chance Vought is producing two outstanding planes for the Navy. One is the AU-1 Corsair, specially designed for close air support. Although extensively modified, it basically follows the original F4U Corsair design first laid down in 1939—a dramatic instance of far-sighted designing.

The other Chance Vought plane in production for the Navy is the sleek looking F7U-3 Cutlass, a tailless, swept-wing fighter, powered by twin jet engines and afterburners. It was designed to out-fly and out-fight any other carrier-based aircraft in the world.

Solidly backed by 35 years of proved experience, Chance Vought engineers are continuing to pioneer. Design and development are working toward the most advanced piloted and pilotless aircraft of tomorrow.

Chance Vought Aircraft • DALLAS, TEXAS

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

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Cabin interior convenience and utility are reflected in these front and rear views (above and right).

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Each company has its own transportation problems consistent with the many commitments and responsibilities of modern business and industry. For this reason the J. D. Reed Company engineering staff makes a thorough study of the Company's requirements and the duties their airplane will be called on to perform.

Our staff will transform your airplane into a masterpiece of beauty and luxury. Components such as engines, radio equipment, hydraulic system and instruments will emerge from our shops meeting higher standards. At the J. D. Reed Company your executive conversion will be designed for utility and engineered for performance.

Let us show you how we can save you money by a custom executive conversion designed to serve your individual requirements.

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☆ Remarkable in 1929

The refueling-in-flight of the "Question Mark", which set an endurance record in 1929, was one of the first ventures of its kind. Gasoline and oil were taken aboard from a "tanker" airplane by lowering a hose. Though they encountered difficulties they stayed aloft for 150 hours and 40 minutes for a new world's record. ***Remarkable indeed—in 1929!***

Routine in 1952

Today "air tankers" transfer large quantities of fuel with speed and efficiency. Here a Boeing KC-97 tanker pumps fuel into a Boeing B-47 bomber by means of the new "Flying Boom" device. This, and newest advancements in pumps, switches and solenoids make these modern refueling airships veritable ***service stations in the sky!***

Since the days of the "Question Mark" refueling procedures have improved and so have the fuels! And through the years Phillips Petroleum Company has been a pioneer in the development of high octane gasolines and special lubricants for ***all*** ranges of flight.

In addition to their capacity for producing tremendous quantities of 115/145 grade aviation gasoline, Phillips today, is meeting the latest specifications for the newest jet and turbo-prop engines. Like any engine, airplane engines are only as good as the fuel that powers them!

Depend on Phillips for your needs in aviation fuels and lubricants!

AVIATION DIVISION
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips 66

AVIATION PRODUCTS

Civil Flying Not Going Knots Yet

Acknowledging strong opposition by many elements of aviation, the Civil Aeronautics Board has voted 3 to 2 against requiring a conversion from statute miles to nautical miles and knots. The government's Air Coordinating Committee had recommended new regulations calling for the conversion, as proposed by ICAO, which seeks to internationalize air-ground communications standards.

MILITARY PURCHASE OF THREE AERO COMMANDERS has been announced, the Army to use them as personnel transports in a service test on which any future orders would be based. Twin-engine Commander is designated as L-26.
—(Aero Design & Manufacturing Photo.)

AIR Report

Significant Trends and News

ANNOUNCEMENT OF NEW CESSNA TWIN is not expected now for months. It had been expected during the summer. Cessna has already set date for its 1953 annual sales meeting for distributors. It is January 13 in Wichita. Dealers will be invited, as they were for the first time at Cessna's mid-year meeting last month.

FIRST BELL HELICOPTER COMMERCIAL DELIVERY since the Korean war started has been made to J. R. Gray, Beechcraft distributor in Dallas. Gray delivered it in turn to the Waggoner Estate, huge ranching and wheat-growing operation at Vernon, Texas. Sherman Kennedy, pilot of the Waggoner Twin Beech, was checked out in the 'copter at the new Bell factory between Ft. Worth and Dallas. He is now flying the machine in regular ranch work, mostly rounding up cattle.

BOOM IN LIGHTPLANE SALES is being led by Cessna, with 42 per cent of unit deliveries and 46 per cent of billings since Jan. 1. Piper follows closely behind in units with 38 per cent, while Beech is second in billings with 34 per cent. Five-month totals for the industry are 1,099 single-engine civil planes valued at $8,344,000.

MORE POWER FOR PIPER MODELS will result from company's standardization on new Lycoming Model O-290-D2 engine, rated at 135 hp. at 2,600 rpm., as compared with 125-hp. rating formerly used.

TWO MORE TWIN STINSONS are being built by Piper, following increasingly impressive performance of its prototype, which had logged over 100 hours of test flying in early June. Piper says these tests have shown

(Continued on page 32)

FLIGHT MAGAZINE

A B A Z I N E

Including SOUTHERN FLIGHT and MODERN AIRPORTS

JULY, 1952 VOL. 38, No. 1

COVER: Frequently seen among executive transports is the Grumman Mallard. Less than sixty were produced prior to 1948 before military demands took over. The Mallard is powered by two Pratt & Whitney 1340's rated at 650 hp. each; has accommodations for crew of two with 10 passengers (4 chairs in the rear compartment and 2 lounges forward); has 500-gal. fuel capacity including float tanks for about 8 hrs. of range at 180 mph. at 8,000 ft.
—(FLIGHT MAGAZINE Photo by E. H. Pickering.)

Air Report—SIGNIFICANT TRENDS AND NEWS - - - - - - - - 7

Just Among Ourselves— EDITORIALS: INDUSTRY VERSUS GOVERNMENT ACTION; INDIGNATION, AMAZEMENT AND APPREHENSION; A WISE DECISION - - - - - - - - - - 9

Only the Best—BY GEORGE E. HADDAWAY—HOW AN A-26 AND A BEECH BONANZA MORE THAN PAY THEIR WAY FOR A DRILLING COMPANY - - - - - - - - - - - - - - - - - - 12

High-Performance Jacobs Helicopter— A PROMISING 5-PLACE DESIGN - - - - - - - - - - - 15

Training Come-back?— CIVILIAN INSTRUCTORS IN AERONCAS MAY INFLUENCE USAF TO RESTORE LIGHTPLANE TRAINING - - - 16

Cessna's Super Selling— BY TOM ASHLEY—INTENSE SALES EFFORTS ARE PAYING OFF—CESSNA BECOMES TOP LIGHTPLANE PRODUCER - - - - - - - - - - - - - - - - - 18

Engine Test-Stand Silencing— AN INGENIOUS NEW INSTALLATION ACHIEVES QUIET - - - - - - - - - - - 23

1,000-Hour Overhaul— PICTURES SHOW RECONDITIONING OF TWIN BEECH - - - - - - - - - - - - - - - - - - - 24

Airmen's Calendar— COMING EVENTS - - - - - - - - - 33

Questions and Answers for Airport Operators— - - - - 34

Flight Safety— CONSIDER THE VOICE IN THE TOWER; SAFETY FACTOR IN EATING; AVOIDING COLLISIONS - - - - - - - 38

GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager, P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas

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Incomparable

a pretty girl

Our 4th of July firecracker girl is illustrating what not to do on the beach this month. The mere thought that such a comely lass might accidentally detonate herself fills us with anguish. Videlle Rux is a freshman at the University of Texas. She is 18, has brown eyes and blonde hair and likes to swim and play tennis. If you're baffled by the "73-88", ask a pilot pal its meaning. (No. 10 in a series of prettyDallas girls discovered and photographed especially for Southwest Airmotive).

Incomparable

The Fine Workmanship by the Electrical Shop at Southwest Airmotive

SOUTHWEST AIRMOTIVE COMPANY

LOVE FIELD • DALLAS

Just among ourselves

EDITORIALS

INDUSTRY VERSUS GOVERNMENT ACTION

THE lowliest putt-putt and the mightiest transoceanic airliner have a lot in common nowadays although the human beings concerned with each don't usually realize it until a common enemy crops up to force a defensive coalition.

That's about what happened when Newark Airport closed down as a result of three unfortunate crashes within the perimeter of the field during two months of last winter. On February 12, a day following the third accident, a national air transport coordinating committee composed of all elements of civil aviation was formed and elected Eddie Rickenbacker chairman. This committee is not to be confused with the special commission headed by General Jim Doolittle and appointed by the President. The NATCC is completely independent, formed out of civil aviation enterprise through trade group representation to study the problems relating to the metropolitan area of New York and New Jersey.

As a result of the committee's work, Newark Airport has been reopened on a limited-operation basis pending completion of runway improvement so that flights over congested areas can be eliminated.

Newark's tragic problem doesn't hang over just the New York metropolitan area. It is every community's problem. That's why we urge that every person engaged in airport planning or use make a thorough study of the case and the work toward the elimination of hazards and noise nuisance before they face the same public wrath Newark experienced. It is a grave national problem even though hysteria has died down somewhat in the last couple of months. It wouldn't take much to fan the flame into forest fire proportions in many places far removed from the super-sensitive New York metropolitan area.

Rickenbacker's committee adopted a program to reduce noise and improve safety which is applicable throughout the U. S. They include:

1. The optimum use, consistent with safety, of preferential runways which will divert the bulk of routine operations away from residential areas surrounding the airports in the area.
2. The transfer from these terminals of all transport training flights, except those specifically required at those airports by Federal regulation, to open areas or other airports.
3. The establishment of "end-of-the-runway" weather information.
4. The installation of equipment to provide continuous recordings of all

INDIGNATION, AMAZEMENT AND APPREHENSION

IN the process of formally opening their new helicopter factory between Dallas and Fort Worth, Bell Aircraft officials last month presented several speakers. One of them spoke bluntly and sincerely. He not only praised the helicopter for its tremendous operational achievements in Korea, where the 'copter's only limiting factor is the number of machines in use, he sounded a warning. The following is how this warning was voiced by Vice Admiral Harold M. Martin:

"I have just returned from commanding the 7th Fleet in the Far East. The 7th Fleet is the Navy's contribution to the war in Korea. Frankly, my emotions since I have been back have been a great mixture of indignation, amazement and apprehension. Perhaps the latter is most dominant.

"There is a full-scale war going on out there. There are roughly a million and a half armed men in Korea. The million represents the Communists, the half represents the Van Fleet armies. In addition to them, there is a sizeable Air Force—probably all we can maintain. And there is also the 7th Fleet. All of them are extraordinarily busy.

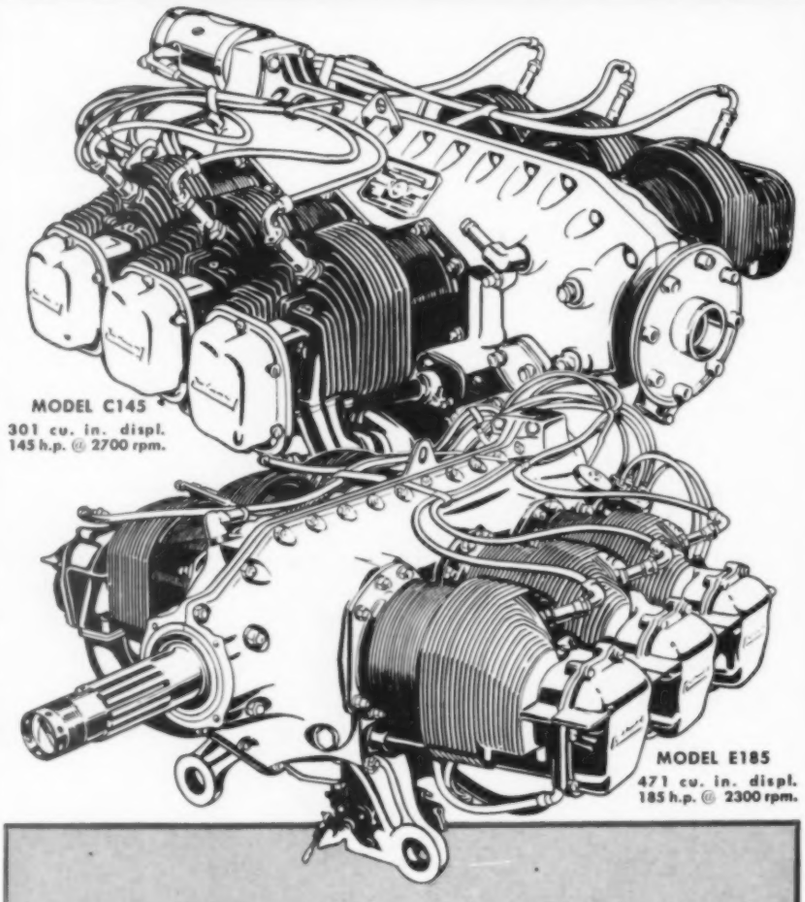
"I don't think it is possible to participate in events out there without coming to some firm convictions. Mine is that the chips are down. We are now at war, Russian style, and this war will only terminate when either Communism or our way of life is destroyed. No compromise is available.

"Russia has chosen bullets instead of butter for her people, and has organized a huge manpower reserve on a total-war economy. We can not hope to compete with her in manpower and we have been rather blindly relying on our technical superiority to match her overwhelming manpower.

"I believe we have some technical superiority, but I think our assumption of superiority has been rather badly shaken of late. It frightens me to think that Russia can give away 1,000 MIG's. I wonder if we could. She can supply unlimited war materials to the millions in the Chinese Army, in the North Korean Communist Army. Could we do as well by our satellites? She has modern electronic equipment and she is using it. She has the atomic bomb and she is prepared to use it. At this moment, perhaps the only superiority we have is in our Navy with perhaps near-equality in our Air Force, in quality if not in quantity. Once we clearly admit the situation and recognize that the chips are down, I don't think we have too much to fear. But unfortunately we are being very slow in awakening ourselves to the realities of the world situation today."

Those who consider the war in Korea a "police action" should note Admiral Martin's appraisal and think long and clearly of his warning. Those who would "stretch out" the air power build-up program should ponder the Russian gift of 1,000 MIG's. All of our potential superiorities are worthless unless they are utilized. That they are not used for maximum effectiveness is a national disgrace and a shocking betrayal of public faith. ★ ★ ★

POWER
FOR THE
Business Fleet



MODEL C145
301 cu. in. displ.
145 h.p. @ 2700 rpm.

MODEL E185
471 cu. in. displ.
185 h.p. @ 2300 rpm.

Of the 15,000 non-carrier type planes in the full-time or part-time service of business firms today, the great majority fly with Continental power. Underlying this preference is Continental's proven dependability, resulting from sound engineering, conscientious manufacture, and a long-established policy of providing parts and service wherever people fly.

CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD — 1902 — OUR 50th YEAR — 1952

Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

aircraft communications between pilots and air traffic control centers.

5. The establishment of specific vertical and horizontal intervals between all aircraft in all air traffic patterns in the area.

6. The establishment of new or improved runways, involving all three major airports in the New York area, to make possible the diversion of air traffic from populous areas.

7. The establishment of designated areas for engine run-ups where resultant noise can be most effectively controlled.

8. The design and installation of improved ground noise reduction devices to reduce annoyance resulting from the necessary running-up of engines while aircraft are on the ground in terminal areas.

While we would go one step further and suggest that something be done in the way of expanded research looking toward engine and propeller noise reduction in flight, such longer term consideration can come along later. It is hoped that the National Air Transport Coordinating Committee will not disband with the temporary success of reopening Newark but rather press on with the problem on a national scale. It's just another case that proves an industry group can accomplish far more than a thousand and one "official" government groups, especially when it comes to policing up its own house. If we don't do it the bureaucrats will.

A WISE DECISION

THE Civil Aeronautics Board deserves commendation for its action in granting a three-year certificate of convenience and necessity to the Mackey Air Transport, Inc., for authority to provide a non-mail service between Palm Beach/Ft. Lauderdale, Florida, and Nassau, British West Indies. The decision reverses one made last year which denied the certificate. All five members of the Board concurred in the case.

While this action in all probability will not result in a wholesale distribution of certificates to similar operators, the Mackey case definitely implies that the Civil Aeronautics Board is not categorically opposed to new air transport ventures. This is important because operations such as Mackey intends to push desperately need U. S. government certification to exist. The carrier is interested only in carrying passengers and did not ask for mail.

Mackey will depend almost entirely on tourist trade which seems to be in great abundance around this area. It

(Continued on page 40)

Sure footing for the "*Cutlass*"

(Photo courtesy U.S. Navy)

First-line U.S. Navy shipboard jet, the Chance Vought "CUTLASS" relies on Goodyear landing equipment for safe, sure stops.

Designed to out-fly and out-fight any shipboard jet, the new Chance Vought F7U "Cutlass"—like many of the outstanding aircraft now in production—relies on Goodyear for its main landing equipment.

Distinctive lines and outstanding performance distinguish this latest Navy fighter—just as dependable, sure stops and safe landings mark the performance of Goodyear landing equipment wherever it is used—in commercial applications as well as military.

Write today for further details on Goodyear developments for greater air safety and dependability—including fuel tanks, tires, tubes, wheels, brakes and AIRFOAM Super-Cushioning.

GOODYEAR AVIATION PRODUCTS

Airfoam—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Goodyear, Aviation Products Division, Akron 16, Ohio or Los Angeles 54, California

Based at San Antonio, Phillips Drilling's Douglas A-26 can rush executives to any spot in the United States or Mexico within 6 hrs. and non-stop. Pilot George Vaughan (left) is shown with company officials.
—(FLIGHT MAGAZINE Photo by E. H. Pickering.)

Only the Best

Executive aviation is on the march largely because owners like Phillips Drilling Corporation don't compromise when it comes to performance and safety

By GEORGE E. HADDAWAY

AN airplane won't make you any money sitting in a hangar. That fact of life is recognized by everyone in the business, especially the airlines and airport service operators who try to wring out every possible hour of utilization from their equipment. In the executive field the primary reason for the present transportation revolution and rapid acceptance of the company-owned plane by the average American business executive is the high rate of utilization now available from executive aircraft. It's the key to executive aviation's amazing postwar growth.

Not long ago an executive of a large oil company called us and said his company was buying their first airplane, a Douglas DC-3, from another oil company which was replacing the Douglas with a Convair. Could we give them some advice?

We could. And we cited a couple of outstanding examples of executive airplane ownership, suggesting he arrange to visit them and analyze their methods of operations. One of the firms we recommended was the Phillips Drilling Corporation of San Antonio because first, they were in the producing business; second, they owned only two airplanes; and third, their intelligent method of operations guaranteed maximum utilization of their equipment. The airplane held no glamor for them. It was just another piece of heavy equipment like a drilling rig. And, Phillips knew that drilling rigs don't pay off unless they're digging for oil long before they discovered executive air transportation.

In fact, the Phillips Corporation (no kin to Phillips Petroleum of Bartlesville, which has been using airplanes for more than two decades) actually discovered aviation in 1947. Before that they just didn't fly. One geologist made a few airline trips a year, but the rest went by train or auto, usually the latter.

How It All Started

Then one hot summer day in 1947, on the flat lands of eastern Colorado, the president of the company, H. H. Phillips, had an emergency arise which forced him on an airline. "It was 110 degrees in the shade that day, and hotter on the dusty roads," he testifies. "The first ten minutes of my first air voyage convinced me our company was way behind the times in transportation, and I flew home determined to correct that situation. By September we had accumulated the best advice we could find, purchased the world-famous Reynolds 'Bombshell' A-26, had Slick Airways strip it down for us and sent it out to Lockheed for the finest and most modern conversion available. That airplane more than pays for itself every year. In such a keenly

competitive business, only one trip can justify ownership. With the A-26 any spot in the U. S. or Mexico is less than 6 hours away from our home office. With the Bombshell for long trips and the Beech Bonanza for shorter hops, we've found the solution to our company's transportation problems."

Mr. Phillips admits he had some difficulty with the ground-bound employes when they first purchased the Bombshell. "All we had to do," he says, "was put them on the airlines between San Antonio and Minot, North Dakota, where our company has been active in leasing possible oil lands. After such an experience they came around to the company airplane on their own volition. Sitting up all night in the Kansas City terminal waiting for connections turned the trick."

The company provides $40,000 worth of accident insurance for every employe who flies in company planes, but the operation is so safe the insurance rates are actually lower than airline rates. "Then, too," Mr. Phillips points out, "our insurance rates are low because we don't go for '$300' pilots. Our chief pilot, George Vaughan, and Pilot Bob Donnell are the best we can get, seasoned veterans approved by the insurance companies. They are equivalent to the best of the airline pilots in experience, pay and duties. They never fly more than 80 hours per month, except in emergencies, nor more than 8 hours in any one day with proper rest periods."

Nor will the company compromise when it comes to service and maintenance. Only the best will do. Chief Pilot George Vaughan operates his two-plane fleet just as though it were an airline, except that he contracts his maintenance with Alamo Aviation, Inc., Beech distributor on the San Antonio Municipal Airport. The contract is on a man-hour-material basis and, according to Vaughan, it's far more satisfactory than doing your own. When operating at peak loads Alamo will put on three or four extra men to do the work. During slack periods Phillips maintenance might require just one full-time mechanic.

There are times the Bonanza will come in at sundown needing a 100-hour check and go out at the crack of dawn the next morning. Alamo turns out the work when it's needed, day or night. That means complete utilization for Phillips. Eighty or 90 per cent won't do. When necessary the 100-hour check will be run at 80 hours.

When the A-26 is due for 1,000-hour maintenance, the work is scheduled three or four months in advance so the company can plan its work load in accordance with airplane availability. Vaughan figures the Bombshell is out of service only one month out of every two years! That also adds up to nearly 100 per cent utilization.

What is the result of such operating practices? The main objective is airplane availability at the most economical cost attainable and that's just what Phillips gets from its A-26 and Bonanza. For example their 1951 figures reveal that they flew the two ships 658,189 passenger miles at a cost of some $80,000, or 1,803 passenger miles per day, 7 days a week at $200 per day cost. This comes to 740 daily airplane miles for $200—an ayerage of only 27 cents per airplane mile for both planes as a fleet total. It's interesting to note that Phillips, with only two airplanes, flew more passenger miles in 1951 than did two certificated local service airlines! Little wonder that George Vaughan looks upon his aviation department as a "company" airline, and is running it as such.

Since Phillips' policy does not permit single-engine night or instrument flying, a Twin-Bonanza is on order to replace their 1951 standard Bonanza. In 1947 and 1948 the company used to borrow Vaughan's personal BT-13 for short hops and small-field use, which proved a definite need for a small airplane. They purchased their first Bonanza in 1949, put over 1,100 hours on it and when Korea came along to threaten getting caught with an old model they traded it in on a new '51.

Why An A-26?

Although the Bombshell is in far more prosaic work now than it was when Bill Odom flew it around the world in 62 hours flying time and 72 hours elapsed time, Phillips has used

N[illegible] maintenance of Phillips Drilling's A-26 and Beech Bonanza is frequently necessary to make planes available for high utilization. Work is contracted by Alamo Aviation on man-hour-material basis.

—(Alamo Aviation Photo.)

it on some mighty long trips, among them a flight to Port Heiden, Aleutian Islands, Alaska, and to Caracas, Venezuela. In 1951 the A-26 flew a total of 321 hours. At 300 miles per hour that means it flew the equivalent of five times around the world based on Bill Odom's route. As Vaughan points out it would require 500 hours of flying in so-called 200 mile-an-hour airplanes to do what his company did with only 321 hours. That's why they own the A-26.

Actual instrument time last year was 51 hours, 51 minutes—a relatively high percentage of total hours for executive air travel. This does not include on top or even marginal instrument time. The principal reason for such a high figure is the company's heavy winter schedules.

The A-26 has a total gas capacity of 975 gallons providing a 2,100-mile range. A study of Vaughan's log books reveals the maximum non-stop flights to be in the 1,600 to 1,700-mile range.

MEN AT WORK AT 300 MPH. in Phillips Drilling's private A-26 are Vice President Morris Elms (left) and Vice President H. H. Phillips, Jr. Air travel's flexibility and speed make private planes indispensable in their expanding operations.
—(FLIGHT MAGAZINE Photo by E. H. Pickering.)

The airplane's oxygen equipment provides a total capacity of 64 man-hours of full use. Vaughan insisted that the system should have enough oxygen for eight people including the crew for seven hours or total gas capacity of the airplane. He can fly a maximum range trip at from 20 to 25,000 feet.

The plane carries a full complement of Collins radio equipment including omni and radio magnetic indicator; two ARN-7 ADF's with MN60-A loops; dual ILS and localizer sets; MN53 three-way marker beacon;
(Continued on page 29)

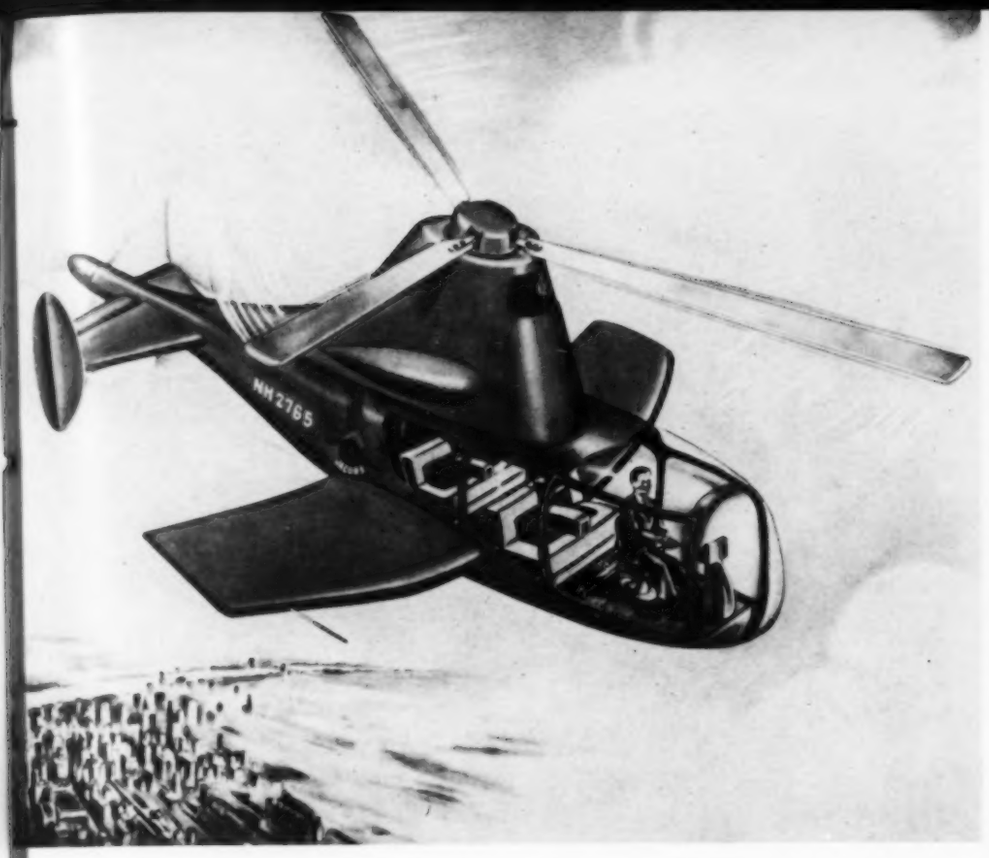
Navigation by Pictorial Computer

One of several "pictorial computers" being developed for aircraft navigation is pictured above. It was produced by Arma Corp., a subsidiary of American Bosch Corp.

Aircraft heading and position are shown against a chart of the area. The chart is part of a 35-mm. film roll containing some 700 different charts. When selected, the chart is projected onto a 10-in. luminous display screen mounted on the aircraft instrument panel. At the center is an omni-bearing station, from which are automatically obtained signals for calculating range and bearing for position indication. As the flight position moves off the chart, the pilot will operate a "slewing" control, shown to the left of the screen, to select the next chart along the desired airway. It takes less than 10 seconds for this control to move another chart into position, centering it.

Accuracies claimed for the Arma pictorial computer are plus-or-minus four-tenths of a mile for range, one-half degree for bearing and one degree for heading. Range is obtained from distance measuring equipment (DME); bearing from the omni-bearing indicator and heading from a Gyrosyn compass. The display unit is about 13 by 7½ by 17½ inches in dimension, except for the 10-in. screen at front and a similar "blister" at the rear to accommodate the lamp house of the projector and its blower. Weight of 16 lbs. does not include shock-mounts. Its amplifier unit has dimensions to fit a standard S-2 case for mounting in the communications rack of the aircraft, and its 21-lb. weight includes shock-mounts. Charts are provided at four scales, these being 1:2,000,000 (direction finding charts with 274-mi. diameter), 1:1,000,000 (route charts with 137-mi. diameter), 1:500,000 (sectional charts with 64-mi. diameter) and 1:250,000 (local charts with 34-mile diameter). ★ ★ ★

AVIATION MANAGER for Phillips Drilling is George Vaughan. Company's Beech Bonanza is flown by Pilot Bob Donnell. A Twin-Bonanza is on order.
—(FLIGHT MAGAZINE Photo by E. H. Pickering.)



New Jacobs helicopter design has pusher propeller in tail and stubby, sweptback wings for high forward speeds. Height to rotor hub is 10 ft. 6 ins.; fuselage length is 22 ft.; normal empty weight is 1,972 lbs., and normal gross weight is 3,258 lbs.
—(Jacobs Aircraft Engine Drawing.)

High Performance Jacobs Helicopter

A 5-PLACE helicopter for which unusually high speeds are claimed and which features several radical new developments has been developed by Jacobs Aircraft Engine Company, subsidiary of Barium Steel Corporation. It was developed around an improved, standard Jacobs 350-hp. aircooled, radial engine and the company says several will be produced by the end of the year, with interest having been shown by the Army, Navy and Air Force.

Estimating the craft's top speeds at between 185-190 mph., with cruising speed of better than 155 mph., Jacobs says this performance will result from several innovations listed as including:

A pusher propeller in the tail, as well as the conventional anti-torque tail rotor.

Stub wings with about 26 per cent of a conventional airplane's normal wing area. Lift from these is said to help reduce vibration of the blade tips for higher forward speeds.

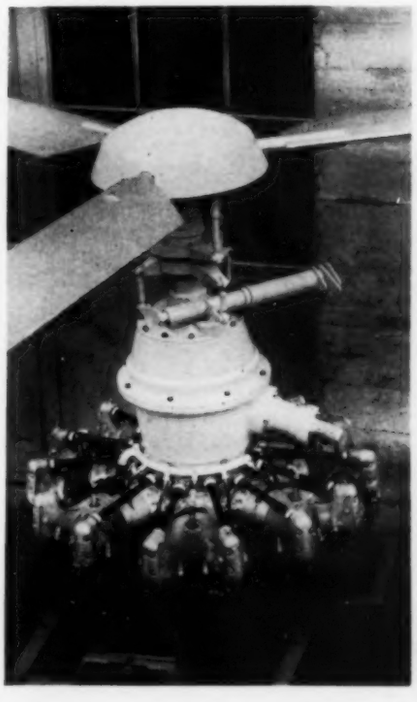
Engine and power drive will be a single unit, said to be the first such unit ever incorporated in a helicopter. Rotor blades are made from a single piece of extruded aluminum alloy. The hub is of a new design said to be 50 per cent lighter in weight than the equivalent conventional hub. All blade motion occurs around a single joint, which eliminates many complicated parts and controls.

Elimination of about 300 lbs. of weight is claimed as the result of these and other new features. Jacobs has applied for patents covering such items as the extruded blade, the hub and the single-unit engine and transmission gears. The tubular steel fuselage is covered with molded plastic fiberglass, having about five times the crash strength of ordinary designs, according to Jacobs.

Development of the new Jacobs helicopter has been under the direction of Alexandre Berger, vice president in charge of research and development, and H. E. Lemont, Jr.

Specifications include the following: Normal empty weight, 1,972 lbs.; useful load (pilot, 4 passengers, baggage, fuel and oil), 1,286 lbs.; normal gross weight, 3,258 lbs.; rotor blades power loading, 9.3 lbs./hp.; disk loading, 3.2 lbs./sq. ft.; mean blade loading, 61.4 lbs./sq. ft.; wing semi-span, 84 ins. ★ ★ ★

New Jacobs power package combines transmission, controls, rotor unit and 350-hp. engine in a single unit. Blades are of extruded aluminum.
—(Jacobs Aircraft Engine Photo.)



This modest little fleet of 65-hp. Aeroncas may determine whether Air Force expands lightplane training for cadets. They are operated by San Angelo Flight Service on USAF contract at Mathis Field, Texas.
—(San Angelo Flight Service Photo.)

Training Come-back?

The putt-putts are on trial and may repeat their World War II training victories

THE ubiquitous lightplane trainers that launched nearly a half-million World War II pilots into military flying careers might be staging a dramatic come-back after long postwar years of sitting dormant around thousands of U. S. grass-root airports. Even if Congress fails to enact the current civil airmen's training legislation and again turns thumbs down on flight training in Air ROTC programs, the 65-horsepower putt-putts may once again do yeoman service in training military airmen.

120 Cadets Scheduled

It all depends upon what the Air Force finds out in an experimental lightplane training program under contract with the San Angelo Flight Service on Mathis Field, San Angelo, Texas. A total of 120 aviation cadets without any previous flight experience will be given 25 hours of lightplane time each under civilian instructors and a corresponding ground school course. Their performance and success will be matched against the records of cadets who enter flying training without benefit of lightplane experience and who step directly into heavy T-6 trainers, which were used as advanced trainers in World War II days.

Under the supervision of the Human Resources Research Center, Pilot Training Research Laboratory at Goodfellow Air Force Base, the project will determine whether lightplane

Civilian instructors for experimental training project are confident their operations will prove need for expansion of lightplane instruction program. Each instructor is assigned three cadets. First class is already under way.
—(San Angelo Flight Service Photo.)

Young USAF cadets in ground school. Total of 120 will go through experimental lightplane training project. Classes consist of 30 students per session of 5 weeks. Project's outcome may not be known for another year.
—(San Angelo Flight Service Photo.)

training can uncover deficiencies not predicted by present cadet selection procedures. They also hope to determine whether such training will contribute anything in the way of improved pilot performance throughout the cadet's training period or merely help him through the early stages of primary training. It will be at least another year before sufficient information is available to answer these questions.

The first class of 30 cadets is well along in the inaugural five-week program. Upon completion of their 25 air hours each and basic ground instruction, the second class of 30 students out of the total of 120 will start training. Ken Frost and Guy Lavender of the San Angelo Flight Service estimate the four classes every five weeks will require about six months total time.

Comparison With T-6 Program

The current Air Force training program at Goodfellow and nine civilian contract schools involves 90 hours in T-6 heavy trainers. It is expensive training, especially if a student washes out after having 70 or 80 hours of time. The civilian contractors hope to accomplish within 25 hours at a terrific reduction in cost what the T-6 course accomplishes within 90 hours, not of course in motor skill, but in catching the wash-outs early. The weak ones might not even solo. The others are taken through chandelles and lazy 8's. By careful evaluation and comparison with products of the established heavy-trainer course later on in the training period of each student, the Air Force hopes to determine whether or not it should return to the lightplane under civilian contract as an integral part of the training system.

The whole spirit around the San Angelo Flight Service operation is one of eager optimism. The civilian flight instructors, each with the responsibility of three cadets, give the outside observer an impression that the program just has to work. They believe wholeheartedly in the project and are confident that amazing results will be forthcoming, even though they'll have to wait until mid-1953 for most of the answers.

Perhaps the instructors' enthusiasm and confidence stem from their intimate knowledge of what lightplane training did in turning out pilots in World War II. All of them are experienced veterans in the flight instruction business. They feel that the experimental program represents one of the most far-reaching and progressive decisions made in recent Air Force policy decisions.

L. C. Jameson is chief pilot. Roy F. Morris and Frank Hamilton are check pilots. Instructors include Kenneth Anderson, Louis Bergman, Newton J. Cole, Marion Davidson, LeRoy Johnson, Harry Karpf, E. Y. Murphy and Calvin L. Phillips. A modernized fleet of 65 hp. Aeronca trainers provides the flight equipment. ★ ★ ★

Lightplane trainer scene on flight line, with instructor and student preparing to begin day's flying. Air Force hopes to determine whether to return to lightplane training under civilian contract as an integral part of its training system, which now uses T-6 heavy trainers for basic pilot training.
—(San Angelo Flight Service Photo.)

Cessna's Super Selling

How an intensive sales drive has elevated Cessna to leadership

By TOM ASHLEY

THE hardest-hitting lightplane sales program ever undertaken in the industry is paying off for Cessna Aircraft Company—ahead of time. It was launched last January with high hopes of year-end sales surpassing last year's. But by the end of May, Cessna sales for the first 5 months of 1952 had already exceeded those for all of 1951 in dollar volume, with 7 months left in which all Cessna records are certain to be shattered.

So successful was the big sales push that Sales Manager Don Flower in June called back his distributors for the first mid-year sales meeting his firm ever held. And for the first time, dealers were also invited. At the meeting, Flower had big news for his prosperous organization—Cessna is now No. 1 in lightplane sales, he announced. Figures he produced showed single-engine civil airplane sales by U. S. manufacturers totaled 1,099 planes and $8,344,000 in billings for the first 5 months of 1952, of which Cessna is credited with 42 per cent of the unit sales and 46 per cent of the billings as the top producer. These figures compare with 12-month 1951 totals of 2,250 plane deliveries valued at $14,692,000, with Cessna having 25 per cent of the 1951 deliveries and 24 per cent of 1951 billings.

This year is indicated as being Cessna's best in history for dollar-volume commercial sales, surpassing even the first postwar boom year of 1946. There can be little doubt but that this sales promotional whirlwind, now gaining momentum which might turn it into a full-fledged sales hurricane, will revolutionize lightplane merchandising.

Key factor in the Cessna campaign is ringing doorbells. At the mid-year promotional meeting, we observed that the younger salesmen, less inhibited than the oldtimers, had been quick to apply Cessna's highly-organized and detailed techniques. Some of the weather-beaten oldsters are more inclined to believe you can't sell airplanes and make profits by knocking on doors. Right now the indications are that for the first time, a civil aircraft manufacturer has opened the door and at least found part of the secret to boosting airplane sales.

What has made ringing doorbells profitable for airplane salesmen? Sales Manager Flower explains it this way: "U. S. business is ready to buy airplanes. Business after business is finding an investment in a private airplane as a transportation tool is as valuable as any business tool investment they can make for their company today—they can't buy any business machine that will pay greater returns, dollar for dollar. Many business men who have tried the private airplane, some of them reluctantly, have reported their enthusiasm over its immediate success and they all say the same—they don't know how they got by without it. But it takes a salesman to get them to try it and a salesman has to ring doorbells to make calls."

As Cessna's sales wizards unfolded their smooth-functioning promotional program at the mid-year sales meeting, for which over 300 distributors and dealers descended on Wichita, their theme and most impressive "needle" proved to be simply this: *"Sell the need, not the model."* Behind it was this logic: Business people and busi-

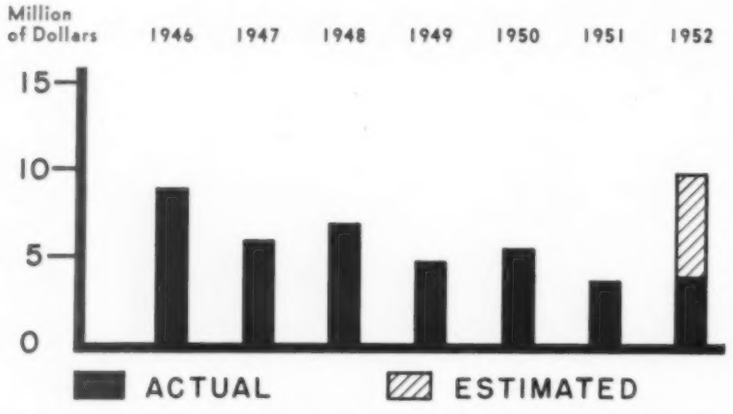


Chart of dollar volume airplane sales for the years 1946-52 shows how Cessna's current sales are topping previous years, including those of boom-time 1946. Front page of Wichita newspaper shown below was devoted to Cessna's success on day of mid-year sales meeting last month.

Cessna No. 1 in Worldwide Airplane Sales

The Wichita Eagle EXTRA

Air Age Arrives for Businessman

Planes for Executive Use No Longer Dream; Firms Taking to Air

500 Leaders in Cessna Sales Field Who Are Making World Selling Record Attend Sales Meet Here

Top 10 Club To Be Honored At Sales Meet

Cessna Plane Sales Promise to Set New Record for '52

4,000 Request Information on Businessliner

Businessmen Find Planes Big Asset

High point in Cessna's mid-year sales meeting was this unfurling of a banner proclaiming the firm's ascension to No. 1 spot in industry sales.
—(Cessna Photo.)

ness firms now buying private planes are those who need private air transportation. To separate the prospects from the suspects, airplane salesmen must analyze this transportation need. This can be done from business research before the call and by careful interviewing while making the call. Factory-furnished aids include Cessna's national advertising campaign, expanded 1,000 per cent over last year and designed to emphasize case histories of business use of Cessna airplanes. Another aid is a handy reference book for salesmen containing a wide variety of such case histories, with examples from many kinds of businesses, industry and farming. Right now a well-planned direct-mail campaign with factory-prepared literature is being released.

Having more than doubled the factory's regional sales staff, Cessna now has 9 factory representatives traveling its distributor territories. These, in turn, are coordinated by two supervisors. From the driver's seat at the factory, Sales Manager Flower thus can keep the doorbells ringing in a controlled canvass of all possible sales opportunities in hundreds of communities.

More Cessna distributors are appointing dealers and "bird dogs" to beat the bushes for prospects, and more salesmen are supplementing or replacing flight instructors in distributor territories. In connection with this, one item on the mid-year sales clinic agenda was a breakdown showing how an airplane salesman can produce for a dealer from one sale per month 170 per cent more net profit than can be produced by a flight instructor averaging 80 hrs. of dual and 20 hrs. of supervised instruction per month (Cessna is no longer producing its Model 120 and Model 140 two-place series).

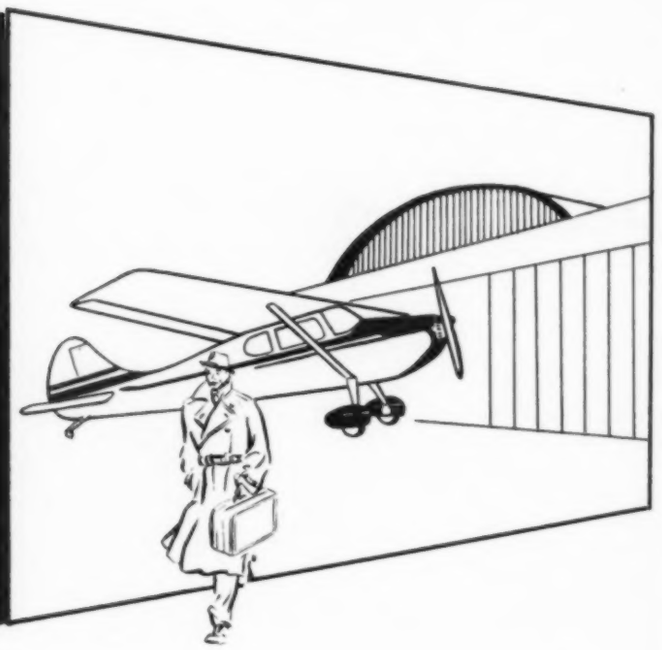
Cessna keeps close tab on its campaign as it gathers steam—as distributors, dealers and salesmen learn to schedule their calls on prospects and send in detailed reports on each call. By the end of May the factory had such reports on a total of 10,212 calls, these producing some 334 airplane sales (other sales were not included in the analysis). This revealed that it took 33 calls to make a sale in May, an improvement over April when calls per sale averaged 37. Calls included contacts made in following up coupons from advertising, contacts with airplane owners, phone contacts, walk-in prospects, prospects suggested by a friend, cold canvass calls and plain knocking on doors. As the campaign progresses, Cessna studies will seek to narrow down the selection of calls for more effective sales solicitation by its distributors and dealers. There has never been a factory sales campaign as thorough-going and comprehensive as this one, and with it Cessna is opening up newer and wider opportunities with each passing month.

The factory learned it was just beginning to scratch the surface when it made a quick campaign sampling of 61 Cessna airplane sales. Twenty-two were to oil companies, 14 to general manufacturers, and 25 to general contractors. Against these sales, Cessna researchers found that, in Kansas alone, there are 4,561 oil companies, 3,000 general manufacturers and 165 general contractors. This shows what a huge volume of calls awaits airplane salesmen in a nationwide campaign.

These and numerous other market studies were analyzed for Cessna distributors and dealers at the meeting, some of the charts used being reproduced with this article. Underlying Cessna's expansion of its sales and production is the company's basic philosophy that public acceptance of airplanes has revolutionized the transportation market during the last 8 years. More people travel by air now than by Pullman.

"Whenever speed is a consideration in travel, the public today thinks of flying," Don Flower told his organization. "Airplanes are carrying more passengers between Los Angeles and San Francisco today than trains and busses combined. This becomes even more important to us when we consider that, whereas bus loads and train loads of people want to go between terminals, there are thousands of other people who want and need to go individually

AUTHORIZED Cessna SERVICE



YOU can be sure of complete satisfaction when you select one of the Authorized Cessna Service Stations listed below for servicing your Cessna.

CONVENIENT LOCATIONS — we are always within easy reach, wherever your travels may take you. . . . DEPENDABILITY — we are staffed with Cessna specialists with long experience and factory training and we stock genuine Cessna and Cessna-Approved parts, components, accessories and supplies. . . . EFFICIENCY AND ECONOMY — our famous nation-wide Cessna Flat-Rate Service assures you of top-notch efficiency at minimum cost.

To make the most of your Cessna's usefulness, visit the Authorized Cessna Service Stations listed below.

These progressive Cessna Authorized Service Shops offer flat-rate service.

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Aviation, Inc.
15th Street Air Park
Tulsa, Oklahoma

Champ's Flying Service
Municipal Airport
El Paso, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
Municipal Airport
Houston—Texas—San Benito

Dal-Tex Aviation, Inc.
Highland Park Airport, Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
Ragle Airpark
Santa Fe, New Mexico

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

West Texas Flying Service
Midland Airpark
Midland, Texas

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

CESSNA CASE HISTORIES

IMPLEMENT MANUFACTURER—
F. T. McCARTY, BRIMFIELD, IND.,

president of the company that makes INDUSTRIAL line of conveyors and farm elevators, uses his Cessna 170 to visit dealers in the midwest, make sales contacts, pick up distributors for factory meetings, fly CAP patrols. He has a 1200 ft. sod strip beside his factory, finds that the Cessna "cuts travel time 60%" and adds, "in the price range, it's the best plane we've ever had!"

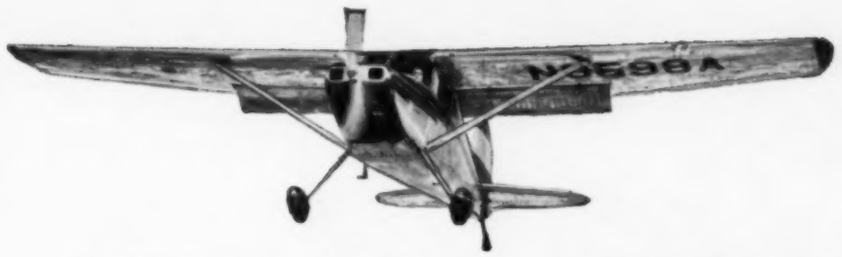
He especially praises his Cessna's fast cruising speed, landing and take-off characteristics, sturdy gear.

COAL WHOLESALER—
ALBERT KURTAK,
PITTSBURGH, PA.,

owns an 11-man firm that leases and strips coal, sells to large local retailers. He started flying for fun, now uses his fast Cessna 170 to pick up heavy machinery parts from distant factories, land at his own mines, prospect for coal from the air, give customers a look at jobs, take vacations. He's owned several makes of planes, says his Cessna is "the most practical and economical you can buy . . . roomy, quiet, and comfortable." "My Cessna landing gear is almost unbelievably shock absorbing," he adds.

Also see the CESSNA 190 SERIES

Cessna's "Executive" series . . . the best big-plane value on the market. Seats 5 with comfort—cruises at fast, airline speeds . . . carries up to 200 lbs. of luggage . . . has every important comfort and safety feature.



You Can FEEL

CESSNA'S FINER ENGINEERING

. . . in the finger-tip handling . . . the high-wing stability . . . the superb landing characteristics of this new Cessna 170. It responds quickly, smoothly to your slightest wish. Service-proved, 6-cylinder, 145 H.P. Continental Engine for fast cruising . . . maximum range! Easy-chair seating comfort . . . wonderful visibility in this 4-place, all-metal Cessna, priced as low as $7245. F. O. B.* Wichita

*With standard equipment. Prices subject to change without notice.

TODAY, CESSNA IS THE AIRPLANE SALES LEADER IN THE ENTIRE WORLD!

Cessna 170

With Super-Lift Flaps!

These remarkable flaps shorten take-offs, reduce your landing speed more than 10%, and combined with Cessna's famous patented landing gear, make usable landing strips of many short, rough fields. Battle-proved on famous Cessna L-19 "Bird Dog" Army observation planes, Super-Lift flaps are *standard equipment* on the new Cessna 170!

FOR MORE INFORMATION . . . phone your nearest Cessna dealer or mail this coupon to Cessna Aircraft Company today . . .

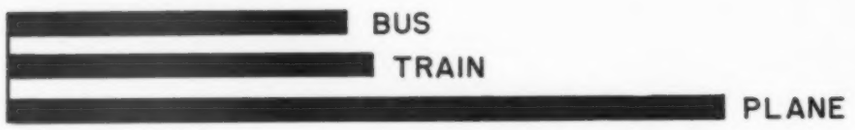
Cessna Aircraft Co., Dept. FM-7
Wichita, Kansas

Please send information on the Cessna 170_____ the 190_____ I am interested in a Cessna for business_____ for farming_____ other_____

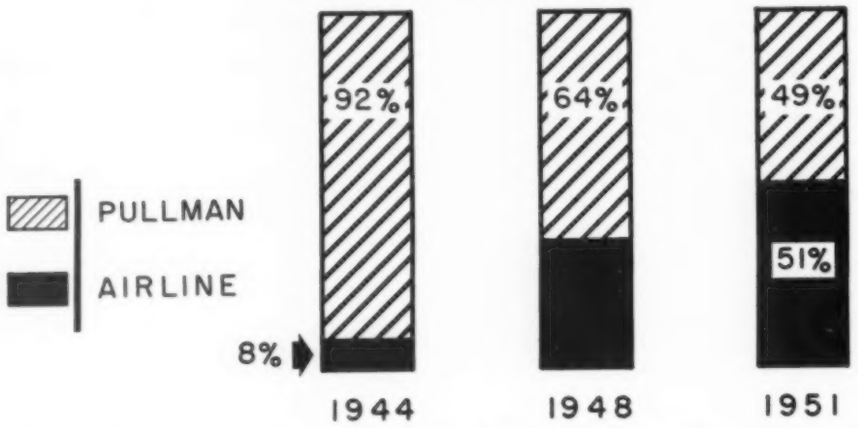
Name_____

Business Address_____

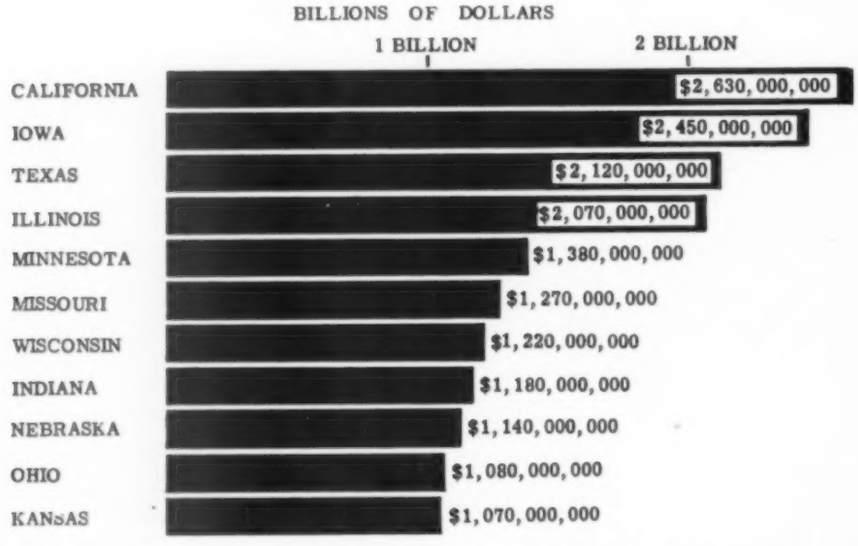
City_____ County_____ State_____



This Cessna chart shows how airplane travel leads bus and train transportation between Los Angeles and San Francisco.



Public acceptance of major first class transportation in the United States is depicted in this chart, which shows how the airlines have forged to the top since 1944.



State farm cash income for 1951 is shown above for all states having farm incomes above $2 billion. Farmers in these states are major users of airplanes. Most of this income is realized during the second half of the year. Figures from Sales Management magazine by permission. Cessna sales tools include these full-page ads appearing every month in FLIGHT MAGAZINE.

Top-Flight Cessna Distributors Listed

The ten Cessna distributors leading in sales at mid-year are listed by the factory as follows, with number of orders for each:

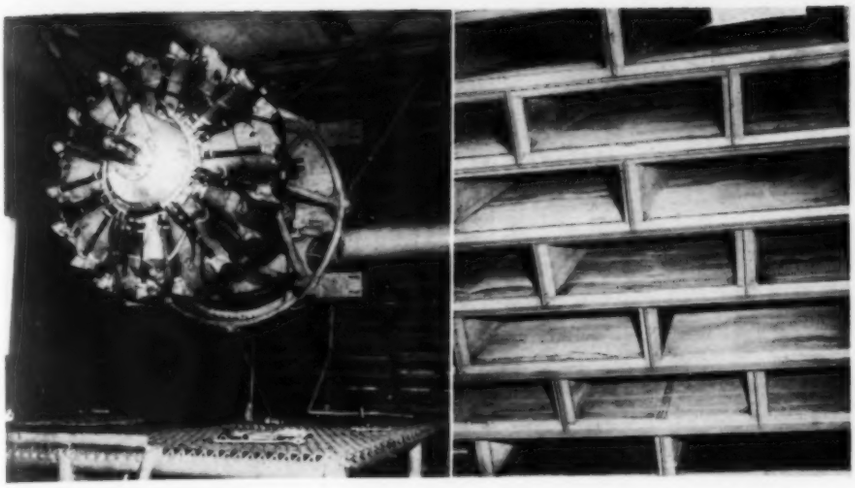
Air-Oasis Co. of California, Fresno and Long Beach, Calif., 80; Yingling Aircraft, Inc., Wichita, Kansas, 47; R. P. Bowman and Co., Oakland, Calif., 46; Cruse Aviation, Inc., Houston, Texas, 38; Mid-States Aviation Corp., Northbrook, Ill., 35; Walston Aviation, East Alton, Ill., 35; Jennings Brothers Air Service, Hillsgrove, R. I., 33; Hair Flying Service, Baton Rouge, La., 31; Clinton Aviation Co., Denver, Colo., 31; Reading Aviation Service, Inc., Reading, Pa., 28.

to scores of places. The private airplane is the best and fastest transportation available to these thousands of individuals."

Cessna's current models are its 4-place, 145-hp., 120-mph. Model 170B, and its 5-place Model 190-195 series with several engine choices and speeds in excess of 160 mph. The Model 170B has a basic price of $7,245 and the Model 190-195 series ranges in price from $16,500 up.

The factory next year hopes to introduce two new models, but has never released any details on either of them, having identified only one, a twin-engine light transport. Before the mid-year sales clinic, some distributors and dealers expected the meeting would be used to announce details of these new airplanes. Nothing was revealed. In fact, factory spokesmen threw cold water on whatever speculation had developed. "Sure, we'll have new models but they are a year off," was the explanation. "People who need autos can't afford to put off their buying for next year's model, and auto manufacturers can't put off their production schedules until their experimental shops perfect next year's models. We're in the same position in the airplane business—we'll have new models every year."

Success of Cessna's sales campaign can not help but contribute to private flying progress in general. At the local level it means more activity and renewed faith and determination among distributors and dealers. In manufacturing it means a greater competitive drive for the expanding market. And for the airplane user it means continuing improvements in the product and its performance. ★ ★ ★



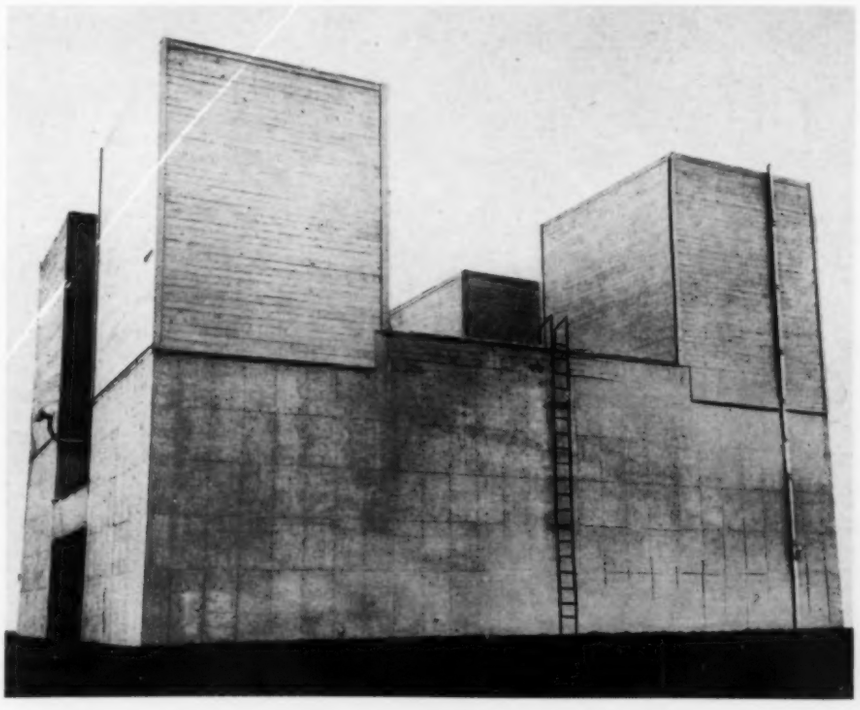
Cable-suspended engine mount is shown at left, with curved steel vanes behind to direct exhaust noises upward into tower. Cables are anchored in shock absorbers. Honeycomb in towers consists of 5-in.-thick panels of steel and Fibreglas. —(Dallas Airmotive Photos.)

Engine Test-Stand Silencing

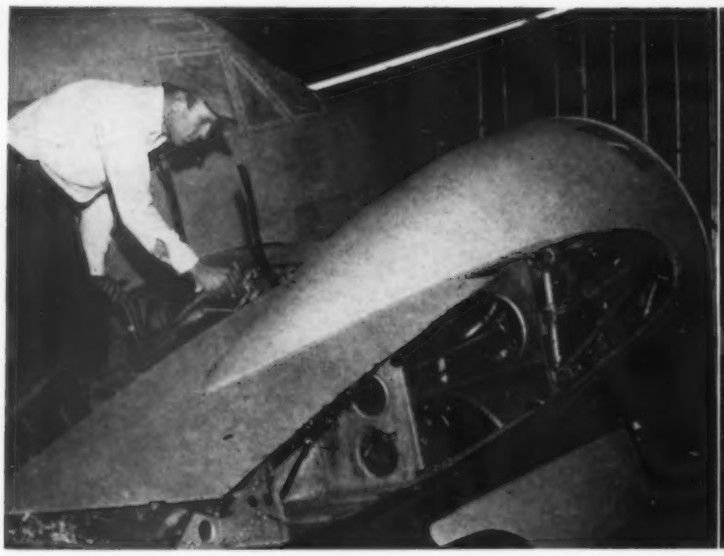
REMARKABLE silencing of aircraft engine test stands has been accomplished with concrete, steel, Fibreglas, and cable mounts for engines by Dallas Airmotive, Inc., located near Love Field in Dallas. In its new "H"-shaped building housing two engine test stands, telephone conversation with both engines wide open is an ordinary procedure, and occupants of adjoining offices are not conscious of engine operations.

The building has exterior and dividing walls and ceilings of 12-in. reinforced concrete. Each side of the "H" houses an interior tunnel 52 by 16 ft., with 16-ft. ceiling. In the center of each tunnel an engine is mounted 8 ft. off the floor by suspended cables, which are anchored in rubber shock absorbers to eliminate vibration transmissions. At each end of the tunnels, 13-by-16-ft. towers rise 18 ft. to the roof, which is 35 ft. off the ground. Cooling air is drawn in through tunnels at one end, is directed upward with exhaust and propeller noises by curved steel vanes behind the engines, and exhausted into the rear towers. These are honeycombed with 5-in.-thick sound absorbing panels of steel and Fibreglas.

Controls are in the cross-bar of the "H." Latest and most complete equipment has been installed by Dallas Airmotive, a CAA-approved shop which has engine overhaul contracts with many airlines, USAF, CAA and private aircraft owners. Officials are S. Jack Ingram, chairman; Henry I. McGhee, president; Donald A. Goldammer, executive vice president, and James H. Squires, secretary-treasurer. W. P. Ramsey of the staff supervised design and construction of the test stand building after investigating other test stands throughout the U. S. and Europe. ★ ★ ★



"H"-shaped building has 12-in. reinforced concrete walls and ceiling, with towers for air intake and exhaust. Engine mounts are in center, between towers, with control room for both cells in cross-bar of "H." Dallas Airmotive has engine overhaul contracts with Braniff, Pioneer, Southern, Trans-Texas, Lake Central, and Robinson airlines, U. S. Air Force, CAA, and executive plane operators such as Cities Service, Rowan Oil, Sid Richardson, Superior Iron Works, Popano Oil, Brown Paper, Tennessee Gas and Continental Oil.



Ready for painting, Twin is rolled into specially-conditioned and equipped room, heated to eliminate humidity, and wings and surfaces mounted in special jigs. Hot-spray enamels dry dust-free in 5 mins.

—(FLIGHT MAGAZINE Photos by Tom W. Collins.)

Custom chairs can be tilted back for fully-reclining positions. Card tables fold down out of way. Thermos drip pan in lavatory door is copper. Large speakers were installed in front and rear bulkheads.

1,000-Hour Overhaul

IT was a tired-looking Beech D-18S which Gulf Oil Company Pilot Stein Lee parked at Gray Aircraft Service Company, Love Field, Dallas. He left it with D. A. Cody, manager, for a 1,000-hr. overhaul, engine inspection, custom in-

Engine removal after wings are off is beginning of 1,000-hr. overhaul.

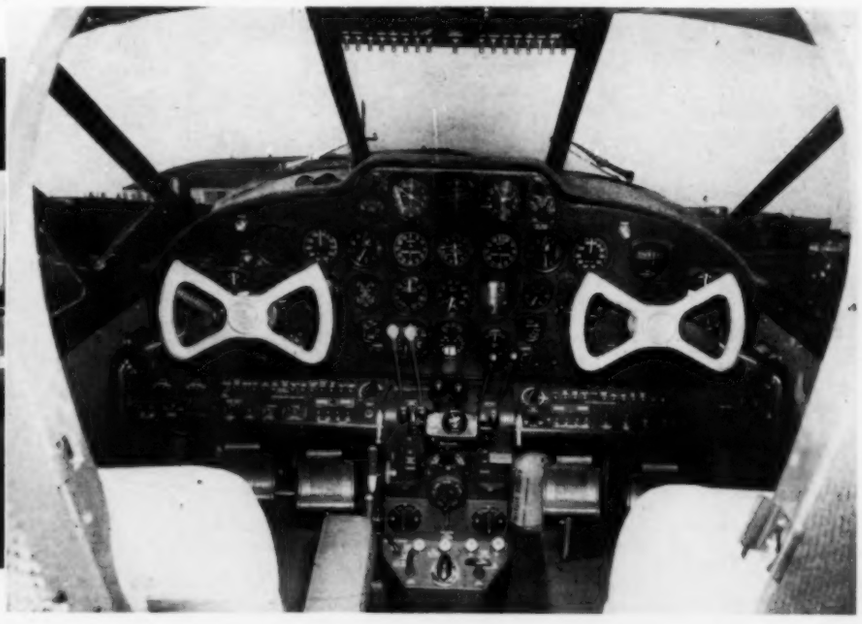
Ready to go, reconditioned D-18S has exterior paint job in gray for sun reflectivity, trimmed in Gulf orange. Two men can wash and chamois in 3 hrs., as against 2 men taking 2 or 3 days to clean and polish an unpainted Twin.

terior, custom panel and custom paint job. This Twin had just been acquired from Hawaiian Airlines and had plenty of time behind it. Some of the steps followed are shown in the FLIGHT MAGAZINE photos on these pages.

Wings were removed and fuel tanks taken out to get to any possible corrosion inside, with paint later being sprayed on inside wing surfaces for protection. Fuel tanks were exchanged for factory-reconditioned tanks and steel center section and landing gear were Magnafluxed as were all wing fittings and wing bolts. Floor boards were removed for accessibility and any needed work, and all electric wiring was closely checked, in this case being completely replaced. Engine controls, flight controls and their cables, pulleys and fixtures were thoroughly checked for reconditioning or replacement, and engines inspected. Gray Aircraft Service has landing gear exchange, and fabric-covered control surfaces exchange deals, in addition to the fuel tank exchange, all being installed as a 3-day job or less. Engine exchange is also featured. A complete 1,000-hour overhaul can be completed in 10 to 15 working days in this service shop.

The 10-day paint job was performed in the firm's new controlled-conditioning paint room, designed to accommodate a Twin Beech and heated to eliminate humidity. DuPont Dulux synthetic enamels were applied by hot spray, at 180-degree temperature. Applied this way, the enamels dry dust-free within 5 mins. Company insignia were sprayed on with synthetic enamel, instead of being applied with decals, this giving a longer-lasting sign with better color matching. ★ ★ ★

Four new installations feature the reconditioned Twin's cockpit. New panel has 32 instruments, room for more, and folds out. New electrical panel replaces old fuse system with circuit breakers. Pedestal is of new design. New type pilot seats offer more comfort, are adjustable fore and aft and have tilting backs.



Equipment includes portable Magnaflux machine in this Beech-approved repair station.

Why the FIRST names in all industries depend on the FIRST names in aviation service

Leadership naturally attracts leadership! Significant of this is the fact that such a large percentage of the country's leading industries depend on the facilities of the CERTIFIED BEECHCRAFT SERVICE STATIONS listed hereon. These firms are leaders in the aviation industry with many years of experience and service. Their leadership has been recognized through unmatched high standards.

The CERTIFIED BEECHCRAFT SERVICE STATIONS have assembled for you the finest facilities possible, trained the most capable staff in factory methods and sell only authorized parts and accessories. This means no time lost through lack of proper tools, parts or know-how—*all aimed at saving you valuable time and money.* **One visit will convince you there is a difference in the service you receive.**

When you do business with the firms listed you can be sure your Beechcraft is receiving specialized attention.

Aircraftsmen, Inc.
Will Rogers Field
Oklahoma City, Oklahoma

Alamo Aviation, Inc.
Municipal Airport
San Antonio, Texas

Anderson Air Activities
General Mitchell Field
Milwaukee, Wisc.
Truax Field
Madison, Wisc.

Atlantic Aviation Service
New Castle County Airport
Wilmington, Delaware

Atlantic Aviation Corp.
Teterboro Airport
(25 minutes from Times Square)
Teterboro, New Jersey
also
Logan Airport
East Boston, Mass.

Butler Co., Aviation Division
Municipal Airport
Chicago, Ill.

Currey Sanders Aircraft Co., Inc.
Downtown Municipal Airport
Shreveport, La.

Francis Aviation
Capitol City Airport
Lansing, Michigan

Gray Aircraft Svc. Co., Inc.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

Harte Flying Service
Municipal Airport
Wichita, Kansas

Hunter Flying Service, Inc.
Hunter Field
Cedar Rapids, Iowa

Ohio Aviation Company
Dayton Municipal Airport
Vandalia, Ohio

J. D. Reed Co., Inc.
Municipal Airport
Houston, Texas

Roscoe Turner Aeronautical Corp.
Municipal Airport
Indianapolis, Ind.

Tradewind Airport Corp.
Tradewind Airport
Amarillo, Texas

Tulsair Distributors, Inc.
Hangar 5, Municipal Airport
Tulsa, Oklahoma

Wings, Incorporated
Wings Field
Ambler, Pennsylvania
Philadelphia International Airport
Philadelphia, Pennsylvania

HELPING AMERICA BUILD FASTER

Lumbermen and Beechcrafts work together

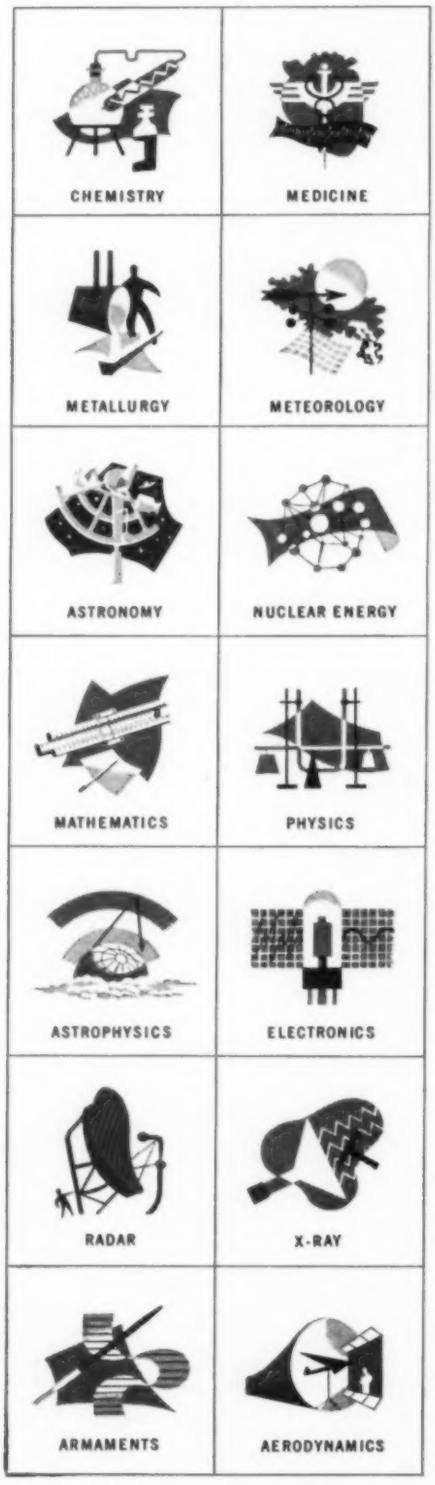
Key men in almost 50 lumber concerns today get *more* done with company-owned Beechcrafts. They go when they need to — they give those distant jobs "on-the-spot" attention. They cut field-trip transit time as much as 75% by use of their Beechcrafts.

Almost every kind of business can profitably use company-owned Beechcrafts, and help America build *faster* by applying travel speed to defense and consumer goods production alike. Apply Beechcraft travel schedules to your business operations. Call your Beechcraft distributor. Or write today on your company letterhead to Beech Aircraft Corporation, Wichita, Kansas, U.S.A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

Leadership demands constant achievement

T-33 JET TRAINER
SUPER CONSTELLATION
P2V NEPTUNE
MILITARY CONSTELLATION
F-94 STARFIRE



Nearly every science known to man ...

insures dependability and advanced design in Lockheed planes

AIRCRAFT DESIGNING and construction are *precise* sciences. That's why Lockheed Engineering has more departments than a big university.

Lockheed's several thousand scientist-engineers work on more than 150 major projects—to build the utmost *precision* and *dependability* into Lockheed aircraft.

LOCKHEED'S ENGINEERS must have all the right answers for each vital part of every airplane. Will it stand heat, cold, tropical damp, corrosion, sand, dust, stress, strain, torque—and exactly how much? Can it be made lighter, stronger, smaller, simpler, more economical, better in any way? If the right metal doesn't exist, Lockheed scientists develop one. If a new machine is needed, Lockheed engineers invent one. There's always a new problem, because Lockheed is always looking for a better method—always building better aircraft.

TRAINING FOR SCIENTIST-ENGINEERS
For information about Lockheed's on-job training, write: Engineering Section, Employment Dept., Lockheed, Burbank, Calif.

Lockheed
Aircraft Corporation
BURBANK, CALIFORNIA, AND MARIETTA, GEORGIA

Look to Lockheed for Leadership

Lockheed

DEVELOPS ADVANCED ELECTRONICS CENTER

Secret and advanced designs of virtually every electronics manufacturer in the U.S. are constantly studied, correlated and put to work at Lockheed Aircraft Corporation's electronics center in Burbank, Calif.

This center is one of the nation's largest clearinghouses for electronics intelligence. It was developed by Lockheed to provide the latest in this science of automatic controls for such Lockheed planes as the F-94, first U. S. All-Weather Interceptor; the WV-1 and WV-2, Navy Constellation radar sentinels; and deadly new models of the P2V Navy patrol bomber for anti-submarine warfare.

Such laboratories as Westinghouse, Hughes, General Electric, RCA, Raytheon, Western Electric, Hoffman and many others bring advanced electronic developments to Lockheed for practical application.

UNIQUE APPROACH

Lockheed's approach to electronics differs noticeably from many other aircraft manufacturers. At Lockheed the emphasis is on the application, not the manufacture, of electronics. That's because Lockheed begins the design of an advanced plane with the specific mission of the plane in mind. Knowing what the plane MUST do, Lockheed wants to be free to analyze *all* products of *all* manufacturers in order to obtain the most advanced electronic devices needed to accomplish this mission.

Lockheed does more than apply *existing* electronics. Often, no device is available to perform a specific job. At such a time, Lockheed scientists provide the all-important idea, frequently supplying the basic design, for a new product. Then they turn it over to an electronics company for manufacture.

TYPICAL EXAMPLE

America's first All-Weather Interceptor, the Lockheed F-94, is a current result of Lockheed's policy. Not being a manufacturer of electronics, noncompetitive Lockheed can work closely with companies who are, as well as the U.S. air services. As a result the F-94 was *electronically at least two years ahead* of competitive aircraft.

This leadership is a principal reason why Lockheed is attracting so many top experts in electronics.

ONLY THE BEST

(Continued from page 14)

ARC-3 two-way 24-channel transmitter and receiver; ARC VHF tunable receiver; two ARC-5 VHF standby transmitters; low frequency receiver; ARC isolation amplifier. Aircraft utilization depends just as much on communications and navigation equipment being in perfect working order as it does on smooth functioning engines and propellers. Here again the Phillips' policy of only the best in original equipment and service will do. Like all other alert executive aircraft owners, Phillips is always among the first to investigate new and improved communications and navigation equipment, always seeking the best engineered accessories money can buy.

Phillips considers the $177 hourly cost of A-26 operation one of the most acceptable business expenses they have. Utilization of aircraft means utilization of management. Good men are hard to find and there's a limit to every man's capacity. One example the company cites revolves around their drilling operations in Mississippi. When their executives travelled by automobile it required 12 hours to drive between San Antonio and Natchez, Mississippi. It's only two hours by air. Instead of being whipped down by the gruelling highway trip, the oil company's employes and executives arrive fresh, relaxed and energetic.

Phillips gives a dramatic account of how they occasionally have an experience that more than pays back to the company every cent invested or spent in aviation. Not long ago an important oil strike was made in a remote part of North Dakota. The geologist at the well notified the home office in San Antonio at 9:30 in the evening. Other geologists for other companies were following the same procedure, but here's what happened:

By midnight two of Phillips' key executives were en route to Minot, North Dakota. During the four-hour-and-fifteen-minute flight they slept comfortably in the cabin. At 5:30 a. m. they had secured automobiles in Minot and were on their way to sign up ranchers and farmers to lease choice land. Fully 24 hours ahead of their closest competitors, the leases purchased proved out so valuable that no dollar figure could be placed on the company's airplane, which was in the air some two hours after the long distance call.

An interesting sidelight to that particular incident was the relief of the two original lease buyers every four days by two other executives so that they were never away from the home office more than five days at a time yet working in the field almost on the Canadian border! The airplane made it possible for Phillips to keep its top experts in the field *and* in the office. Without the airplane, no doubt less qualified men would have been sent out to do the leasing. "You just can't put a dollar value on that kind of flexibility," says Phillips. The estimate is that with corporate aircraft one executive can do the work of three—and do it with less wear and tear on the old human body.

Although the Phillips aviation experience is unique in many ways, the

FORMALLY OPENING HIS NEW HELICOPTER FACTORY between Ft. Worth and Dallas last month, Larry Bell (center) took time out to discuss Aircraft Industries Association Helicopter Council matters with Council Secretary Don Ryan Mockler (left) and Council Chairman Harvey Gaylord (right), who is Bell's vice president in charge of helicopter operations. —(Bell Aircraft Photo.)

Economy!

Talk about enthusiasm, talk to a Piper Pacer owner! He has good reason to rave. He has a comfortable airplane for four people. He has range and climb and a solid ship that takes the jolt out of rough air. Yes, he's getting performance, and he's getting it with economy. That's why he's enthusiastic.

No other plane owner gets four-place transportation as inexpensively as the Pacer owner. The lower initial cost means less hourly depreciation. The lower horsepower needed by Piper's compact, efficient design means less gas consumption. The new Piper Duraclad finish and service-proven features of Piper planes means lower plane maintenance.

Yes, the Pacer matches performance and utility with economy. A happy combination which makes happy owners.

Ask one of the firms listed to demonstrate how one of the Piper models can save you valuable time and money. These firms are prepared to serve all your aircraft requirements.

Arizona
ANDERSON AVIATION COMPANY, INC.
Sky Harbor Airport
Phoenix

Iowa
ELLIOTT FLYING SERVICE
Cram Field
Davenport

DES MOINES FLYING SERVICE
Municipal Airport
Des Moines

Oklahoma
SMYER AIRCRAFT SALES & SERVICE
Municipal Airport
Ponca City

Texas
BROWN FLYING SERVICE
Municipal Airport
San Antonio

PARKER-HUETT AVIATION COMPANY
White Rock Airport
Dallas

SOUTHWEST AIR RANGERS
Municipal Airport
El Paso, Texas

WICHITA FALLS AIR TRANSPORT COMPANY
Municipal Airport
Wichita Falls

same fundamentals apply to most successful corporate aircraft ownership and utilization. Though their "fleet" consists of only two airplanes, the amazing utilization as revealed in the Phillips flight records is far more than happenstance.

Lesson for Tax-Grabbers

We think the success lies in adherence to certain principles not always found in executive aviation. Phillips' aviation department, consisting of two experienced, clean-cut, alert, top-notch pilots, is an integral part of the company on the same basis as the land department, the geology department or the production department with an office right next to the boss. The pilots are executives and are paid accordingly. It is a company rule that pilot decision is final on weather and maintenance, never subject to question or argument. It is truly their department—not just in name.

While there is no compromise on quality, it doesn't necessarily follow that costs of operation are not important. The pilots operate their aviation department on a budget and are constantly seeking ways to save money while at the same time insisting on the highest standards of maintenance and service. With the U. S. government taxation policies growing more and more punitive towards American free enterprise which is constantly seeking ways and means to expand and do a better job by utilizing modern business tools such as airplanes, exceedingly good judgment must be exercised in every phase of corporate aircraft operation.

It is a sad commentary on the times that the incentive to build, create and expand is being killed off by an attitude that airplanes are still in the luxury class. The Phillips story is certain proof that airplanes actually produce more taxable income for Uncle Sam. While the Phillips operation might be of great value to other companies with corporate-owned airplanes, or to companies and individuals not yet sold on the idea, we're of the opinion that such amazing utilization might well help educate the tax-grabbers who are still inclined to look upon the modern airplane much as they do a fancy yacht instead of the business tool it actually is, daily creating new wealth and extending the horizons of economic development of the nation. That's the principal story driven home by executive aviation in 1952, of which the Phillips company is a classic example. It's a story that must be told and understood throughout America. ★ ★ ★

135 Horsepower Now Standard on Pacer and Tri-Pacer

Here's a plane with performance you never knew could be yours in such an economical, four-passenger business plane.

It's the new Model 135 Pacer and Tri-Pacer with the 135 horsepower Lycoming engine, more powerful version of the power plant that's made the Pacer series the standard for reliability.

You'll think nothing of climbing to six or eight thousand feet* in as many minutes to enjoy the economy and comfort of upper-air flight. And the better than 130 mph cruising speed makes it a pleasure to fly cross-country.

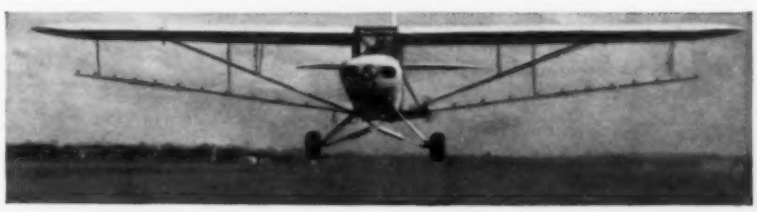
Yes, here's a plane with more transportation per dollar than anything else on the market. And the new 1950 pound gross weight means even greater load-carrying ability for plenty of radio, instruments, passengers and baggage.

You don't know how nice flying can be until you fly the new Pacer or the famous Tri-Pacer with simplified controls and tricycle landing gear that take the skill out of flying. See your dealer for full details and a demonstration, or write for Pacer brochure to Piper Aircraft Corporation, Lock Haven, Pa., Dept. 7-F.

Service ceiling is 15,000 feet.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNSYLVANIA



135 Horsepower is now standard also on the 2-place Super Cub and PA-18-A Crop Sprayer and Duster for truly sensational performance.

BEECH AIRCRAFT OFFICIALS IN GROUND BREAKING CEREMONIES last month launched construction of a new $1,300,000 factory building in Wichita for production of the new Beech T-36A advanced trainer transport. Left to right are John P. Gaty, Frank E. Hedrick, Olive Ann Beech and T. A. Wells.
—(Beech Aircraft Photo.)

Fly to the Flying L

...for Holidays in the Hills!

A happy haven for airmen—Texas' famous fly-in ranch where friends gather for fun. Horseback riding, fishing, swimming, favorite sports —and flying's always swell at the Flying L. Write now for reservations and colorful folder.

Superb facilities for overnight, a week or a season.

AIR REPORT

(Continued from page 7)

that its two 135-hp. Lycomings give the 4-place Twin Stinson a 150-mph. cruising speed. It is expected to sell at less than $25,000, with deliveries in 1953.

MIDGET AIRPLANE RACES are scheduled for Aug. 30-Sept. 1 in Detroit for the Continental Trophy and $10,000 cash. The revival of the Continental classic will feature the 5th Annual International Aviation Exposition, sponsored by the Aero Club of Michigan at Detroit-Wayne Major Airport. The air show is being held in conjunction with the annual meetings of the Air Force Association and the National Aeronautic Association.

OVER $500,000 WORTH OF CABIN SEATS FOR BEECHCRAFT T-36A transport-trainers are being produced in Dallas by Luscombe Aircraft Corp. . . . **FUEL TANK SEALING FOR LOCKHEEDS BY TEMCO AIRCRAFT CORP.** is available to executive transport owners. Temco's Greenville (Texas) division last month completed a Lodestar sealing job for General Motors.

BRANIFF AIRWAYS' FIRST CONVAIR 340 is due for delivery in July. Twenty of the 44-passenger, 300-mph., pressurized transports have been ordered by Braniff. R. V. Carleton, operations manager, said 4 flight crews will be trained for each of the 20 planes, with Convair passenger service slated to begin in August.

AERO COMMANDER GROSS WEIGHT of 5,500 lbs. has been approved, an increase of 100 lbs. Sixteen of the twin-engine craft had been delivered at the end of June.

PRACTICAL NOISE REDUCERS FOR AIRPORTS include a landscaping project utilizing shrubbery and grass as a noise absorber at Will Rogers Field in Oklahoma City and a deflector wall erected at Los Angeles International Airport.

NEW R-20 MARKER BEACON RECEIVER is in production by Aircraft Radio Corp., at Boonton, N. J. It weighs only 2.6 lbs. complete with shock mounting. . . . **NEW LEAR 36-CHANNEL VHF TRANSMITTER-RECEIVER** with remote selector switch for instrument panel mounting permits automatic transmission and reception on the same frequency with a single setting. Total weight is less than 17 lbs. including shock mount.

COMMERCIAL ORDERS FOR TRANSPORT HELICOPTERS can now be accepted, says Doman Helicopters, Inc., Danbury, Conn., producers of a CAA-certificated 7-seat helicopter. . . . **E. MERRITT ANDERSON** of Anderson Air Activities, Malden, Missouri, is the new president of Aeronautical Training Society, which has voted active participation with CAP in a program to aid USAF cadet recruiting. . . . **NEW $1,300,000 FACTORY** for F-94 jet interceptor final assembly will be built by Lockheed at the proposed USAF jet center, Palmdale, Calif. . . . **HELICOPTERS HAVE RESCUED 9,000 MEN IN KOREA,** Larry Bell, the manufacturer, said in opening his new Texas helicopter factory last month.

AIR FREIGHT CHEAPER THAN SURFACE TRANSPORT is reported by Salmita Consolidated Mines of Canada in using a Bristol Freighter. Flying in several hundred tons of supplies, equipment and personnel for operations 150 miles northeast of Yellowknife Town, its figures show air freight to cost $90 dollars per ton as against $160 per ton by tractor train. Associated Airways, Ltd., operates the Bristol.

THERE ARE NOW ABOUT 25 CONVERTED A-26 EXECUTIVE TRANSPORTS in business operation, and Grand Central Aircraft at Glendale, Calif., is converting 5 more of the 300-mph. aircraft.

AN ALTITUDE OF MORE THAN 79,000 FT. was reached by the Douglas Skyrocket on June 15, 1951, when Test Pilot Bill Bridgeman exceeded 1,000 mph., the Navy has revealed.

NEWEST CAA SURVEY OF ACTIVE CIVIL AIRCRAFT shows over 50,000 single-engine, 2,700 twin-engine, 540 four-engine and 12 tri-motor

Airmen's Calendar

July 8-12—Aviation Writers Association Annual Convention, Ambassador Hotel, Los Angeles.

July 4-9—Ninety-Nines All-Woman Transcontinental Air Race, Santa Ana, Calif., to Teterboro, N. J.

July 14—Regional Air Safety Forum, sponsored by Corporate Aircraft Owners Association and CAA, Kratz Airport, St. Louis.

July 18-20 — Woman Fliers of America National Convention, Chattanooga, Tenn.

July 25-26—Parks College of Aeronautical Technology Silver Anniversary Celebration, Parks Airport, East St. Louis, Ill.

Aug. 19-30—19th National Soaring Contests, Grand Prairie, Texas.

Aug. 27-30—National Flying Farmers Convention, Alabama Polytechnic Institute, Auburn, Ala.

Aug. 30-Sept. 1—Fifth Annual International Aviation Exposition, with Continental Trophy Race, Wayne Major Airport, Detroit.

Oct. 11-18—4th All Texas Air Tour.

aircraft in active service as of last January 1. Five leading states in civil aircraft ownership are California with 9,845, Texas with 6,404, Illinois with 4,779, New York with 4,308 and Ohio with 4,187. Copies of the report are available from CAA's Office of Information, Washington 25, D. C.

SHARP DROP IN STALL-SPIN ACCIDENTS is reported by CAA listing 39 for the last quarter of 1951 as compared with 113 in the same 1950 period. CAA has been demonstrating an improved stall recovery technique in which the nose of a stalled airplane is dropped only to the horizon instead of diving to recover control.

BIGGEST SUMMER CADET ENCAMPMENT IN CIVIL AIR PATROL HISTORY is under way, with 8,000 youngsters spending two weeks at USAF bases.

AIR EDUCATION OF GIRL SCOUTS is a new project undertaken by the Austin (Texas) Chapter of the Ninety-Nines as a model for national adaptation. Ziggy Hunter of the Ninety-Nines and the Texas Aeronautics Commission said her unit recently flew 12 "Wing" Scout girls to the Flying L Ranch as part of the program.

FIVE TEAMS REPRESENTING U. S. in INTERNATIONAL SOARING CHAMPIONSHIPS in Madrid, Spain, June 30-July 13 include Pilots Richard H. Johnson, Stanley W. Smith, Paul B. MacCready, Jr., Paul A. Schweizer, J. Shelley Charles, William C. Beuby, Lt. Col. Scott Royce, USAF, alternate pilot, and Team Captain Walter Setz. Their transportation was financed by funds raised by Soaring Society of America and FLIGHT MAGAZINE through private donations. ★ ★ ★

We Keep Our Customers IN THE AIR!

Norm Hoffman *extends a cordial invitation for you to visit West Texas Flying Service on your next trip.*

That's why West Texas Flying Service is now expanding into one of the Southwest's major sales and service establishments.

Every extra minute your airplane spends on the ground is time lost. West Texas Flying Service provides the kind of tools and craftsmen needed to give perfect maintenance without delay.

Left: When you are in need of minor service work or major overhauls, we can assure you of the finest job possible at economical prices.

Right: Our up-to-the-minute radio shop is typical of the facilities available to you at MIDLAND AIR PARK. We welcome all kinds of radio work.

Transients — plan your next flight to include Midland.

West Texas Flying Service

Midland Air Park — Midland, Texas

Questions and Answers for Airport Operators

Too Much Emphasis on Airport Profits

WE have before us a long, strong and earnest plea from one of our good friends for more rational municipal airport treatment of the fixed-base operator and the airport user. It is a long letter, well thought out, and we won't attempt to publish it here. Principally it is concerned with a trend toward landing fees for general aviation and increasing rents, use fees and other charges to fixed-base operators. The meat of the matter lies in the following:

"This whole matter revolves around the basic principles of whether a municipal airport should be expected to 'break even' or 'show a profit.' It is understandable why airport managers want to do a good job and show a good operating record for their 'department' but the question is, should a good job on their part be measured in terms of income and profit or should it be measured according to the increase in plane ownership, licensed pilots and general use.

"The other principle—a basic and compelling fundamental—is: Whether or not a public service facility, built and paid for by the taxpayers of the United States, shall be set up and used as a profit-making operation. Or, should the airport be maintained as an essential service to the traveling public in the same way that highways and streets are used and in the same sense that public parks are used.

"It seems that some municipalities are so eager to show a profit that they are 'putting the squeeze' on the operator by increasing his rental rates, use fees, etc. to the point where HIS profits are being bled out of his business which, in the end, will force him out of business.

"In this same eager way some airports are trying to force landing fees on operators and itinerants which, again, can have but one effect."

ANSWER: It is fundamental and basic that a municipal airport is a public utility for the use of the public. There can hardly be any other sound reason for spending public money except that. An airport is certainly not built as a profit-making venture but if it is built at all it is for public use and through that use and the reasonable services which it should furnish, the matter of revenues and other returns to the community may be expected to put it in a state of self sufficiency in time.

It has long been our belief that airports cannot be any more successful than their tenants and users. In many instances the airport manager is in the middle between the user and the owning agency. Sometimes that middle becomes a tight place when the owning agency's officials demand more and more in the way of revenues. We have known of several occasions when the airport manager himself had to fight his own municipal government in order to preserve reasonable levels of rates and charges, and the sad part about those cases was that the people for whom the managers were fighting never had any intimation that the manager was fighting their battles. That often happens. On the other hand, it is true that some managers won't fight for their tenants and users for fear of becoming unpopular with their own local governments.

There is another angle to this problem that worries your Question and Answer Man. It may be the indication of a trend. Not long ago we had a young fellow tell us that he wanted to learn to fly and that he had the cash money, and it took him a month to get the fixed-base operator in his town to take him on as a student. This wasn't a very large town, it is true. We note with gratification that in some places operators are giving to their communities the kind of fully diversified service that the community has a right to expect from an airport and that is plane rental, flight training, so-called charter, line and mechanical service, agricultural application and sales. In many of these places we find sizeable classes, both men and women, learning to fly, but in many, many places we find operators so busy seven days a week with more profitable and steadier sources of income that they don't believe they have the time or the desire to train the individual.

This is understandable on a one-man airport where the only operator is a duster. It is understandable also in the big town where the man who caters only to executive flying in sales, rental and service does not want to operate a school. But in the large cities a student who wants to fly can always find instruction whether at the municipal field or on some private field.

Where it hurts is in the towns in the medium population class. We are convinced there are reasonable numbers of people in these towns who want flight instruction and have the funds to pay for such instruction as individuals. The business is there. Since the war, profitable agricultural, industrial and executive aviation many times proves more inviting than the provision and maintenance of training aircraft for individual students.

But generally we have a feeling that if the operator has a strong case for reasonable rates and charges for himself and his customers in order to assure his survival in a sound economic position, he also is faced with the necessity for providing the services his community has a right to expect if no one else is providing those services.

We do not feel that landing fees for aircraft in the categories used for executive and so-called personal aviation can help but be a deterrent to use and activity. In fact, we feel that many times such charges are put on to restrict the use of airports by such flying. Actually it costs money to collect landing fees from the users of single-engine aircraft. These costs probably exceed in amount the justifiable landing fees on a basis of weight. Any operator whose customers face unreasonable landing fees is likely to find that his business is affected, which brings us back to what we said before. No airport can be more successful than its tenants and users.

PORTABLE VHF TRANSMITTER with range and broadcast receiver has been marketed by Mitchell Industries, Mineral Wells, Texas. It is the Mitchell Airboy, Sr., only 6 by 4.5 by 5 ins. in size and weighing only 5.5 lbs. including battery pack and loudspeaker.

Road Marking for Airports

QUESTION: The other day I heard a business man in my town say that he had never seen the airport and didn't even know how to get there. It set me to thinking. This town I live in has about 11,000 people, a good airport, an operator who owns four airplanes and there are seventeen others locally owned and used primarily for business. There is no airline service. We feel we have a fairly useful and busy airport with a number of transient users. It is located on a good

PIONEER AIR LINES' NEW PACEMASTER FLEET ALL TEXACO-LUBRICATED

PIONEER AIR LINES provides fast, dependable local air service to 21 cities in Texas and New Mexico, over a route of 1,934 miles. In 1951, more than 161,000 passengers were boarded and, with its new Pacemaster Fleet in operation, Pioneer expects this figure to jump to over 200,000 in 1952. *Engines of all Pioneer planes have always been lubricated exclusively with Texaco Aircraft Engine Oil.*

In a multi-million dollar move to give better, faster local air service, Pioneer Air Lines is putting into operation a whole new fleet of 36-passenger, 270-m.p.h. twin engine Martin aircraft. This will cut flying time, provide greater passenger comfort, and increase cargo capacity.

"We are trying to provide the best local airline service possible," says General Robert J. Smith, President of Pioneer Air Lines, "and our new fleet, like our old, will be lubricated exclusively with *Texaco Aircraft Engine Oil.* We know from years of experience how much it helps in maintaining dependable, on-schedule operation and in keeping our maintenance costs low."

Pioneer's experience with Texaco parallels that of airlines everywhere. In fact—

For over 15 years, more revenue airline miles in the U.S. have been flown with Texaco Aircraft Engine Oil than with any other brand.

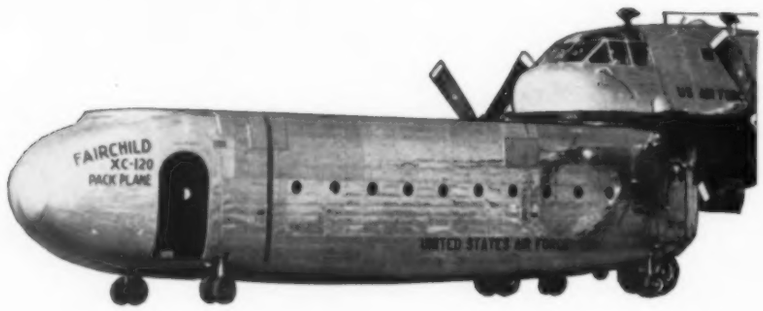
Let a Texaco Aviation Representative show you the added efficiency and economy you can count on with Texaco Aviation Products and Texaco Lubrication Engineering Service. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, *Aviation Division,* 135 East 42nd Street, New York 17, N. Y.

TEXACO Lubricants and Fuels

FOR THE AVIATION INDUSTRY

Faithfully yours 50 *for Fifty Years*

The XC-120 Packplane is a lot of plane to polish...



so Fairchild picked WHIZ KLAD Polish!

When major manufacturers and airlines take a close look at plane polishing costs, they know that WHIZ Klad Polish is the polish they need. That's because Klad Polish *does a better job in less man-hours!* It will pay you, too, to use WHIZ Klad Polish.

Here's why:

- Saves 25% to 40% man-hours
- Klad Polish is *safe* (conforms to Gov't Spec. Mil-P-6888)
- Effectively removes surface oxidation
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paved farm-to-market road, but when I got to thinking about it there are two main highways which cross at our town and several secondary roads emanate from there, but here was a resident who didn't know how to get there. Now I'm not going to ask you about the things on the airport which should be done to create more interest, but I would like to hear what you have to say about marking routes to the airport.

ANSWER: We could tell you we think that well-marked routes to airports are a necessity and we do say that.

We could tell you that there are recommended types of signs for that purpose and we do. One of those systems is described in two drawings designated "Drawing No. 8000—Post Mounted Highway-Airport Directional Marker," sheet 1 of 2 and sheet 2 of 2, prepared by the Office of Airports, Civil Aeronautics Administration under date of May 4, 1950. Contact your CAA District Airport Engineer for these. The signs conform generally to the requirements set forth in the manual on uniform traffic control devices published by the Bureau of Public Roads.

But we'd rather tell you why we think you need them.

If it is necessary to the local citizen and the stranger alike that streets be marked so that homes, industry and business firms can be found readily within the city limits, it certainly follows that airports, which are generally outside the limits, should be made easy to find. If we are to accept the airport as a part of our community and aviation as an accepted method of transportation, it should not be hidden.

Many times all of us have heard the statement made by airport people that the town itself is not interested in the airport. Yet the airport itself is a business concern with something to sell. By its very nature it cannot normally adjoin the courthouse square or be in the middle of the shopping district.

In spite of that fact it is very difficult to find a town which has adequately marked the way to the airport. On the other hand you will find many airports that have attempted to draw trade by the establishment of fine restaurants, recreational facilities, good aviation enterprises, attractions for children such as model rings without making the location easy to find. It seems to us that from the spot where most of your citizens and your travellers are most likely to be, at sometime or another with frequency, the route to the airport should clearly be marked by the signs. That place seems to be the business and shopping district, the place where people work and spend their money. Even if the person who sees the originating sign pointing out the route has no immediate intention or desire to go to the air-

port, the constant suggestion of that sign and others along the route begin to bring the airport into his consciousness. Some day then when he reads in the paper either the notice of some special doings or an advertisement of one of the tenants, concessionnaires or users, he is not going to be able to say he does not know how to get to the airport.

Every fixed-base operator, every concessionnaire and every manager should be just as interested in ground marking of routes to the airport as in air marking. There are still more potential customers for air transportation on the ground than there are in the air.

Appreciation

The old Question and Answer Man has felt in his heart for years that somebody some day from somewhere would write in a nice letter and sure nuff here it is:

"I have just completed reading your questions and answers for airport operators in your May issue.

"I certainly feel that this section of your magazine in any one issue is well worth the cost of an entire year's subscription. I would like to see this portion enlarged to cover many other questions that the flying public undoubtedly would like to know the answers to.

"I feel that it is part of the airport management's duties to investigate all complaints either by the tenants on the field or by the visiting airmen and do their very best to eliminate the cause of the complaints.

—R. P. Selfridge, Supt. of Airport Operations, Kansas City (Mo.) Municipal Airport."

★ ★ ★

TOP 1950 GLIDER FLIGHT honors went to William S. Ivans, Jr., (left) recently when he received from John K. Northrop (center) the Lilienthal Medal. Ivans soared to 42,100 ft. over Bishop, Calif., for a new world altitude record for single-seat sailplanes. Award was at a meeting of the Aero Club of Southern California. Its president, Andrew Neff, is at right in the photo.
—(Northrop Aircraft Photo.)

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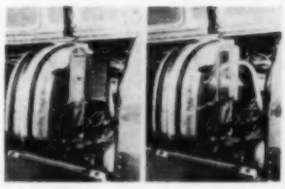

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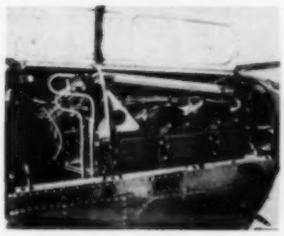

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Flight Safety

(EDITOR'S NOTE: These interesting and valuable notes and views have been briefed from bulletins issued by Flight Safety Foundation, of which Jerome Lederer is director. They are presented with the thought that our readers will find them useful in their flying.)

Consider the Voice in the Tower

BECAUSE control tower operators usually couch their instructions in the form of a suggestion, realizing that they are in an advisory capacity only, pilots sometimes do not grasp the urgency of a "suggestion." Consider, for example, the misunderstanding which can arise when a tower clears a plane for immediate take-off. Pilots not recognizing the importance of the word "immediate" may delay for a short time to do some final checking, and then take off. If the control tower uses the word "immediate" in a very imperative manner, the pilot may resent being "pushed around" and deliberately take his time. The result—confusion that is apt to cause a critical condition, viz:

1. The minimum separation for safety between aircraft will not be maintained—with hazard of the landing aircraft descending on the aircraft in take-off position, or descending into the turbulence of a prop wash.

2. The aircraft in take-off position may start down the runway and climb into the "landing" aircraft which has received a go-around.

At these critical moments, quirks of radio reception may result in loss of contact which precludes further warning.

It would be helpful for pilots to spend some time in the control tower when traffic is heavy to see for themselves. The CAA invites pilot visitors. Here is a good place for cooperation all around.

Safety Factor in Eating

A pilot reports the following interesting experience:

"I am employed as co-pilot on a twin-engine Beechcraft. One day our chief pilot and myself arrived at 10 a. m. with a stop-over of about 2 hours before going on to our next destination. This was ample time to arrange for our passengers' lunch on board the Beechcraft, as well as time

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for eating our own lunch in a well-known restaurant. My lunch consisted of a combination sandwich which included ham, a cup of coffee and a glass of water.

"At 12:10 p. m. we departed for our airport. About 45 mins. after leaving, I began to feel ill and shortly after that became violently ill. By the time we arrived, which was at 2 p. m., I was sick beyond the point of being of any aid to our chief pilot and had I been piloting the plane alone, it would have been extremely difficult for me to land it on the ground safely. It occurred to us that had I been flying alone and if the weather conditions were not good, a serious accident could have resulted.

"Upon landing, I was hospitalized for 2½ days. Since this unfortunate incident occurred, it has been our policy to have two qualified pilots on board the airplane for every flight and when we have occasion to eat meals prior to departures, we avoid foods which are easily contaminated. Fortunately, our chief pilot and I had eaten different foods for the particular lunch mentioned, and we shall endeavor to do this in the future also."

★ ★ ★

Avoiding Collisions

Pilots are concerned about blind spots from the cockpits of large transports. The following report from one of them shows why all pilots should maintain a thorough watch for other aircraft in the vicinity of airports:

"The good Lord sure packed a lot of empty space in three dimensions. Maybe that is why we don't have more collisions around airports. It seems to me that we have some pretty close calls, and more and more often as time ticks along.

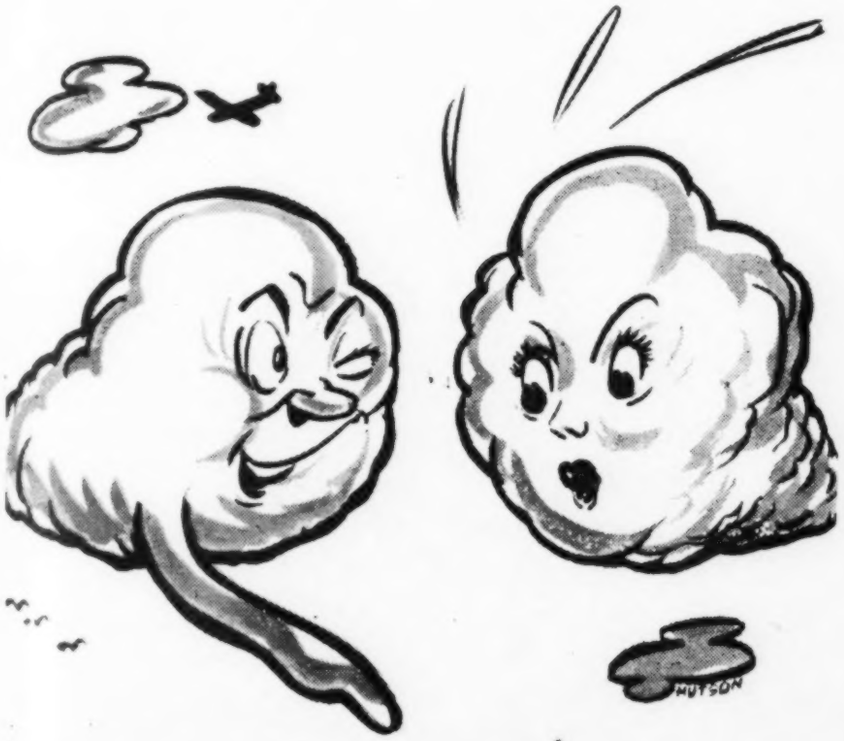
"From a plane such as the DC-6, the pilot has less than 5 per cent of the visual sphere that is not blind angle. In perfect weather, the plane is 95 per cent blind.

"When turning to the right, the pilot on the left is completely blind; he cannot see what he is turning toward, and vice versa. This is a serious situation and calls for the closest attention.

"On my last trip it was night, visibility officially unlimited. The tower called out the positions of 5 other airplanes approaching the airport. My co-pilot was to make this landing. We tried to pick out the other airplanes. Of course, 30 seconds after we were told the positions of the other airplanes, the information was no longer good.

"Against the background of the city lights, many of them moving, as those on autos and trains, and we could not spot any of the other airplanes. The tower was talking to 5 approaching for a landing, and 8 others reporting in range.

"My co-pilot began to sweat. He headed for 31R instead of the assigned 31L because his eyes were devoted to trying to see what he was hitting. He darn near overshot, too. 'Why the hell,' he snarled, 'don't those damn fools put on one landing light so that a fellow could spot them?' 'Probably,' I said, 'for the same rea-



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son that you don't.' So he put on a landing light.

"Why don't the company flight managers train their pilots to put on a light? Of course, if pilots have sense enough to command a $1,000,000 ship with a $5,000,000 cargo, they should have more than enough sense to put on a light in traffic.

"With the above condition at night, the landing light helps a lot. One time I was letting down right on top of a Connie. He put on a landing light. The shaft went out ahead in the haze and I could pick it up at an angle that was not blind. I talked to the Connie pilot afterwards and he said that he was looking down because he thought that I was underneath, and so he failed to see my shaft."

Man—Principal Problem to Flight

Jerome Lederer, whose Flight Safety Foundation bulletins are the source for material used in this column, offered the following description of man in "Infusion of Safety Into Aeronautical Engineering Curricula:"

"It is well known that the average man has only one head, two eyes, two hands, two feet; his response to demands cannot be guaranteed within plus or minus 5 per cent; his temperature cannot be allowed to vary more than a few degrees; his pump must operate at constant speed and pressure; his pressure containers, both hydraulic and pneumatic, have limited capacity; his controls are subject to fatigue, illness, carelessness, anger, inattention, glee, complacency and impatience.

"This mechanism was originally designed to operate in the Stone Age. It has not since been improved. The problem consists of permitting this ancient mechanism, designed to function within narrow tolerances, to control its destiny in a strange environment of very wide ranges in operating conditions." ★ ★ ★

JUST AMONG OURSELVES

(Continued from page 10)

may be termed an "unusual" case with peculiar conditions favorable to a profitable operation in the public interest. This publication feels there are many such unusual cases throughout the nation that require similar consideration and justifiable service for which there is no established pattern or formula. The fact that the Board has certificated Mackey lends much hope to the proposition that our scheduled air service pattern has not been frozen to the present mold and that new ideas for creating new types of services might have a chance.

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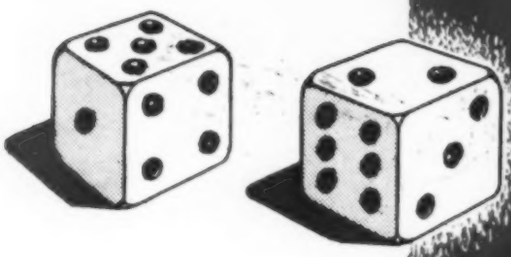

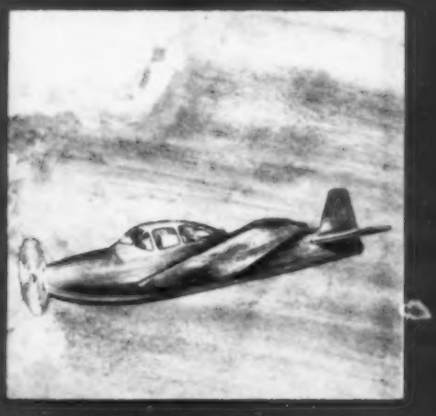

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